ATLAS

By Advance Adapters Inc.

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March 2013

Performance Transfer Cases

- Application Guide
- Specifications
- Ordering Info

RUBICRAWLER

Rubicrawler information has been included inside of this guide

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This *thirteenth* edition of the Advance Adapters Atlas manual has been prepared to assist you in the general information regarding the Atlas transfer case as well as installation recommendations. An Atlas Transfer Case is sure to change the way your vehicle performs off-road. You will benefit greatly by understanding the Atlas characteristics and how to apply them for the ultimate in trail performance! If you should have any questions or comments, please feel free to contact our sales staff.

The information in this guide is constantly being updated and we ask that you verify any information that may be critical to your application. Please REREAD the OPERATING INSTRUCTIONS once you have completed your installation.

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LIMITED WARRANTY:

Atlas transfer cases are guaranteed against defects in workmanship and materials *for the life* of the original purchaser and is non-transferable. This lifetime guarantee covers and is limited to gear sets and castings. The remainder of the unit (i.e. shafts, bearings, gaskets, hardware) is covered by our limited 1-year warranty.

This warranty begins from the date the unit is shipped from Advance Adapters. The warranties are voided (as determined by Advance Adapters, Inc.) by misuse, abuse, improper maintenance or alterations of the product. These guarantees DO NOT cover any labor, shipping, normal wear or any other unforeseen event that may occur due to failure of a unit.

Advance Adapters reserves the right to repair or replace any product. All returns must be sent prepaid and have a Return Authorization Number (RGA#). Please call the sales department for assistance. WARRANTY IS VOID if the proper gear lubricants are not used and proper oil levels are not kept, and/or the product has not been properly installed and instructions have not been followed.

SPECIAL NOTE: This manual has been put together with the best possible information available to us. Advance Adapters cannot accept the responsibility for vehicles and applications that are not standard. The contents of this brochure have been proofread before printing to minimize errors. We cannot be held responsible for errors overlooked. Please feel free to contact us with any suggestions or comments you may have regarding any portion of this manual. The information that you provide us could be useful in assisting other customers.

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ATLAS SPECIFICATIONS

ATLAS 2 SPEED

CASE:

Material ..... 356-T6 Heat Treated Aluminum
Weight ..... 110 lbs. (dry)

INTERNAL COMPONENTS:

Gears ..... Helical Cut
Bearings ..... Needle & Taper Rollers
Synchronizers ..... Borg Warner
Available Input Shaft Splines: 10, 21, 23, 25, 27, 28, 29, 31, 32, 34, 35
Rear Shaft ..... H.D. or 32 Spline,
Front Output ..... 26 Spline or 32 Spline

RATIOS:

Low Range: ..... 2.0:1 **or** 3.0:1 **or** 3.8:1 **or** 4.3:1 **or** 5.0:1
High Range 1:1

LUBRICATION:

Quarts ..... Liters
2.0 ..... 1.89

LENGTH COMPARISON:

NP231, 20.5"
NP241 Rock Trac T/C, 15-1/4"
Dana 300, 12"

ATLAS 4 SPEED

CASE:

Material ..... 356-T6 Heat Treated Aluminum
Weight ..... 135 lbs. (dry)

INTERNAL COMPONENTS:

Gears ..... Helical Cut
Planetary Assy ..... 6 Pinion Helical design
Bearings ..... Needle & Taper Rollers
Synchronizers ..... Borg Warner
Available Input Shaft Splines: 21, 23, 27, 29, 31, 32, 34
Tail Shaft ..... H.D. or 32 Spline
Front Output ..... 32 Spline

RATIOS:

Low Range ..... 2.0:1, 2.72:1 & 5.44:1
or ..... 2.72:1, 3.0:1 & 8.16:1
or ..... 2.72:1, 3.8:1 & 10.34:1
or ..... 2.72:1, 4.3:1 & 11.70:1
High Range 1:1

LUBRICATION:

Quarts ..... Liters
2.5 ..... 2.36

LENGTH COMPARISON:

NP231, 20.5"
NP241 Rock Trac T/C, 15-1/4"
Dana 300, 12"

EXACT ATLAS LENGTHS

ATLAS O.A.L. with the Yoke list	Atlas 2 speed STD. tailhousing	Atlas 2 speed Short tailhousing	Atlas 4 speed STD. tailhousing	Atlas 4 speed Short tailhousing
1310 NON CV	13.405”	11.380”	18.381”	16.356”
1310 CV	13.842”	11.817”	18.818”	16.793”
FLANGE 1300	12.224”	10.199”	17.200”	15.175”
1350 NON CV	13.467”	11.442”	18.443”	16.418”
1410 NON CV	13.655”	11.630”	18.631”	16.606”
1350 CV	14.027”	11.815”	18.816”	16.791”
FLANGE 1410	12.092”	10.067”	17.068”	15.043”

Atlas case Operating Temperature:

The case temperature will vary with the type of driving you are doing with the vehicle as well as outside air temperature and air flow around the drivetrain. The numbers listed below are what we feel are the normal operational temperatures. If you do connect a temperature gauge to your Atlas and are getting temperature variances from what we have listed, you should first make sure your gauge is accurately calibrated. If the gauge is reading correctly and your case temperature is greater than 15% than what we have listed, please call one of our technicians.

Normal Operating Temperature: 160 - 175F
Vehicle using high horsepower or pulling a heavy load: 190 - 220F
Maximum recommended case operational temperature: 230 - 240F

ATLAS INFORMATION AND ACCESSORIES

Oil Specification: The Atlas is shipped DRY. Before operating your Atlas, please fill with the recommended gear lubricant (Amsoil MTG GL-4, Torco MTF GL-4, or any other A.P.I. GL-4 rated synthetic gear oil). If you are unable to find these lubricants, one of the following synthetic oils can be substituted as a **temporary fix** until the proper fluid can be obtained: Castrol Syntec 5w-50 or Mobil 1 Synthetic 15w-50.

The recommended oil capacity for the ***Atlas 2 speed is 2 quarts*** and the ***Atlas 4 speed is 2-1/2 quarts***. The Atlas does not offer any type of 'weep hole' to verify the oil level. Therefore, we have supplied your unit with a site tube to aid in determining the correct fluid level. Once the required quarts are put into the Atlas, we recommend marking the oil level on the site tube. We like to use a small zip tie as a oil level marking device. ***Note:*** When the Atlas is overfilled with more than the recommended levels, it will cause the unit to vent the extra oil out the breather.

Atlas oil levels should be monitored frequently. The oil site tube should be marked to indicate proper oil level for the Atlas at the rotation installed in your vehicle. The oil should be drained and replaced after the first 500 miles and then at intervals of 10,000 to 15,000 miles thereafter.

Atlas 2 and 4 speed Replacement Site Tubes: We carry replacement parts for the Atlas site tube. The site tubes are offered with two thread sizes to fit to the Atlas case. Early cases were drilled and tapped for the 1/2" pipe fittings and the later cases for 1/4" pipe fittings. The complete kit with the 1/2" pipe fittings is **P/N 301601**, and the kit for the 1/4" pipe fittings is **P/N 301600**. We also offer the individual fittings if a complete kit is not needed.

Breather, Hose & U-Bolts: Normally a new breather and breather hose is required to properly vent an Atlas 2 or 4 speed transfer case. We can now supply you these items along with additional Atlas oil for the first oil change. U-bolt kits for the standard yokes are also listed below.

Breather & Breather hose

P/N X11320	2SP Atlas kit
P/N X11324	4SP Atlas kit

U-Bolt kits (includes two u-bolts)

P/N X11340	1310 & 1330 U-Bolt kit
P/N X11341	1350 & 1410 U-Bolt kit
P/N X11342	1410 Strap kit

Atlas Aluminum Knobs:

P/N 303150	2.75" L-N-H standard labeled
P/N 303152	2.75" H-N-L reversed labeled

Atlas Black Anodized Knobs:

P/N 303150AA	2.75" L-N-H standard labeled
P/N 303152AA	2.75" H-N-L reversed labeled

Body Mounts: When installing an Atlas in some vehicles, floorboard clearance can become an issue. We now offer Daystar's Comfort Ride body lifts for most applications. The Jeep TJs and YJs can be installed with in Atlas without a lift but the extra 1" provided for these vehicles aids in the installation process.
(**P/N 714450** TJ) or (**P/N 714452** YJ)

ATLAS 2 SPEED DESCRIPTION

Through the analysis of other successful transfer case designs, we have manufactured a rugged, all gear-driven transfer case. Combining the latest in CAD/CAM technology and years of in-house CNC machining capabilities, the Atlas transfer case is sure to bring you the utmost in dependability and performance.

The Atlas is available for both left and right hand vehicle applications with centered rear differentials. The solid, one-piece case design is manufactured from 356-T6 heat-treated aluminum alloy. This material is also used for the structural access cover and all other exterior components. The massive gears are helical cut and synchro-equipped for quiet performance and "shift-on-the-fly" capability. These gears are supported by needle bearing elements, precision matched to strong 8620 shafts. The ruggedly designed output shafts are amply supported by tapered roller bearings. The Atlas also features a unique twin stick design to deliver crisp, quiet operation.

The Atlas transfer case offers you the ability to customize the transfer case to your vehicle. We offer several upgrades, options, and different configurations for this transfer case. Listed on the following pages is all the information to make your custom, “made-to-order” Atlas the ultimate gear driven transfer case.

ATLAS 4 SPEED DESCRIPTION

The 4SP has essentially two parts. The first is the reduction housing. This housing holds a planetary assembly that has a gear ratio of 2.72:1 when in “low” range, and a 1:1 in “high” range. It has one shifter coming out of the top to select the desired range. The planetary is not a synchronized shift-on-the-fly design and must be operated when the vehicle is stopped. (The main case still retains the shift-on-the-fly capability just like the standard Atlas). The reduction housing shifter is designed for a cable shifter.

The second part of the 4SP may look the same as the standard Atlas, but it does have some differences. The main case of the 4SP is the same raw casting, but has some machining variations to make it into a 4SP. The main case functions independently from the front reduction housing and retains all of the normal Atlas features (front and rear outputs controlled independently, and the “front only” option). All of the gears are the same as the Atlas 2 speed.

The strength of this unit is not an issue. We use a planetary assembly that was originally run in a NP241-HD transfer case. The six planetary setup has proven its durability and has been used in countless heavy-duty vehicles. Other attributes to the planetary assembly include a very quiet operation, easy shifting, and low rolling resistance. When all of this is put in front of a legendary Atlas Transfer Case, you get the best combination of gear ratios and reliability.

The 4SP units will fit nearly all transmission applications that the standard Atlas will bolt to. These will include spline counts of 21, 23, 27, 29, 31, 32 and 34. The unit has a circular 6 bolt pattern on the front, identical to the one found in Jeep vehicles. We have a variety of different adapters available to retrofit the 4SP into nearly any application. The twin sticks for the main unit can be either the standard linkage or the cable linkage. The standard linkage is offered in a variety of custom packages available for particular vehicles and can be modified to fit many custom applications. The installation of an Atlas 4 speed should be nearly the same as the standard Atlas 2 speed. The Atlas 4 speed is just a bit longer.

We do not recommend flat towing vehicles equipped with the 4 speed due to the additional bearings used in the planetary housing.

ATLAS RATIO SELECTION

The Advance Adapters Atlas gear-driven transfer cases are the ultimate in gearing and strength. These units are the solution for combining both ***on*** and ***offroad*** performance. From its inception in 1996, we have had numerous inquires to fit the Atlas into a wide spectrum of vehicles. Today the Atlas has been installed in both full and down size vehicles such as Jeeps, Broncos, Explorers, Dodge, Chevy & Ford Trucks. These units can be found in daily driven vehicles, all the way up to the extreme rock crawling vehicles. When you want or need peace of mind on the trail, in the rocks, on the sand, or in the mud, the Atlas is the transfer case for you.

RATIO OPTIONS:

Since there are numerous engine, transmission, and axle combinations, the need for various transfer case gearing options has increased. The 2 speed Atlas transfer case now has 5 different low gearing options to suit the needs of your driving habits and your drivetrain components. Along with the these different Atlas 2 speed ratio options, we are now producing our new 4 speed Atlas transfer case. The 4 speed Atlas gives you 3 low ranges & 1 high range - a few more choices when it comes to 4-wheeling. You can now have the ultra low gearing for rock crawling, a low range gear for trail use, and mid range for sand and mud. Whether you're looking at the 2 speed Atlas or the 4 speed Atlas, your ratio options will be diverse.

The wide variety of Atlas gear ratio options have been designed to accommodate any type of drivetrain combination. Please be aware that the lower the final drive ratio gets, the harder it is to stop the vehicle when in gear. Larger brakes will be required to slow the vehicle. Shifting the transmission into neutral on an automatic or depressing the clutch on a manual will be required to bring your vehicle to a complete stop.

Atlas 2 Speed Ratios

2.0:1 : This unit is more of a stock ratio found in most early full size trucks and used in quite a few competition rigs
3.0:1 : This unit is popular in numerous applications. Used in quite a few competition rigs
3.8:1 : The Atlas 3.8 is a good choice for the avid 4-wheeler since this low gear ratio is ideal for moderate to some extreme rock crawling.
4.3:1 : This unit is popular in numerous applications.
5.0:1 : This unit is popular in numerous applications.

Atlas 4 Speed Ratios

1.0:1 / 2.00:1 / 2.72:1 / 5.44:1
1.0:1 / 2.72:1 / 3.00:1 / 8.16:1
1.0:1 / 2.72:1 / 3.80:1 / 10.34:1
1.0:1 / 2.72:1 / 4.30:1 / 11.70:1

With any of the Atlas ratios equipped in your 4WD, you have the opportunity to select a sensible ring and pinion gear ratio for great street performance. Combined with a low-geared crawl ratio of your choice, your vehicle will have the ultimate combination. This allows you to compete with the most well-equipped vehicle, but then be able to cruise comfortably down paved roads. If you are serious about on and offroad performance and dependability, then demand one of the Advance Adapters Atlas transfer cases.

Note: On Jeep TJs with a Nth Degree long arm kit, the Atlas 4-Speed will not fit these vehicles with this suspension installed.

CUSTOM BUILD YOUR ATLAS 2 SPEED TRANSFER CASE

1. GEAR RATIO PAGE 6

ATLAS20
ATLAS30
ATLAS38
ATLAS43
ATLAS50

2. INPUT SPLINE PAGES 11-21

A10	GM 10 SPLINE
A21	JEEP 21 SPLINE
A23	2" INPUT STICKOUT
A23LONG	LONG INPUT
A23SHORT	JEEP 42RLE TRANS/ JK'S & 2012 MANUALS
A234L60*	SHORT 4L60E INPUT (23 SPL)
A25	BRONCO II HAS A LEFT DROP T/C
A26	2012 JK AUTO TRANS.
A27	GM 27 SPLINE
A28	FORD 28 SPLINE
A28C4	C4 TRANSMISSION
A29	DODGE 29 SPLINE
A29HD	DODGE 29 SPLINE (HD MATL.)
A31	FORD 31 SPLINE
A32	GM 32 SPLINE
A32HD	GM 32 SPLINE (HD MATL.)
A35	GM 2WD 35 SPLINE
A32NT	NISSAN TITAN 32 SPLINE (LEFT DROP T/C)
A34	FORD 34 SPL.
AD32	DIVORCED UNIT REQ. EXTRA YOKE

**Must have a VSS tailhousing or a TruPulse kit*

3. CASE ROTATION OPTIONS PAGES 22-23

301100	LEFT DROP CASE
301100LF	LEFT DROP FLAT ROTATION
301101	RIGHT DROP CASE
301101RF	RIGHT DROP FLAT ROTATION
301100C	LEFT DROP TO FIT STOCK GM ADAPTER
301101C	RIGHT DROP TO FIT STOCK GM ADAPTER

A Divorced Atlas must use a standard case

4. SHIFT CONTROL OPTIONS PAGE 32

301510	LEFT SHIFTER CONTROL
301511	RIGHT SHIFTER CONTROL

5. TAILHOUSING OPTIONS PAGE 24-25

ALT32	STANDARD TAILHOUSING
AST32	SHORT TAILHOUSING
AVT32L	GM VSS TAILHOUSING / RIGHT OR LEFT DROP
ALT32HD	300M OUTPUT SHAFT (STD. TAILHOUSING)
AST32HD	300M OUTPUT SHAFT (SHORT TAILHOUSING)

6. FRONT OUTPUT SHAFT OPTIONS PAGE 25

AF26	26 SPLINE FRONT OUTPUT
AF32	32 SPLINE FRONT OUTPUT

7. YOKE OPTIONS (list rear output 1st) PAGES 26-27

A1310-26	26 SPLINE YOKE (non C.V.)
A1310CV26	26 SPLINE YOKE
A1310	32 SPLINE YOKE (non C.V.)
A1310CV	32 SPLINE YOKE
A1330CV	32 SPLINE YOKE
A1350	32 SPLINE YOKE (non C.V.)
A1350CV	32 SPLINE YOKE
A1410	32 SPLINE YOKE (non C.V.) strap style
A1410U	32 SPLINE YOKE (non cv) u-bolt style
AF1300	32 SPLINE FLANGE YOKE 1310-1350
AF1410	32 SPLINE FLANGE YOKE

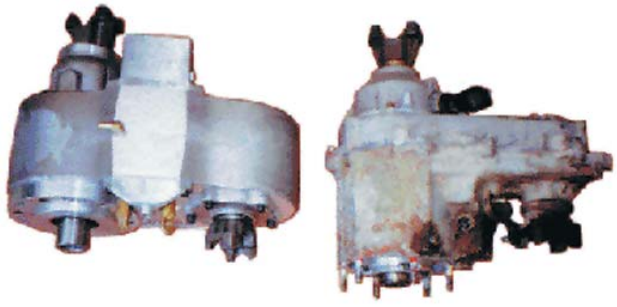
8. SPEEDOMETER OPTIONS PAGE 28-30

301506	*MECH. SPEEDOMETER HOUSING
300621	SPEEDOMETER HOLE PLUG
300640	*ELEC. SPEEDOMETER (TJ)

Does not include the speedometer drive gear.* See **Page 29.

9. SHIFTER OPTIONS SOLD W/ ATLAS PAGE 31

303000L	UNIVERSAL LEFT
303001R	UNIVERSAL RIGHT
303002L	TJ AUTOMATIC
303002U	TJ UNIVERSAL
303003L	TJ MANUAL
303004L	BRONCO
303005L	ZJ
303006L	EXPLORER
303007L	XJ
303008L	JK SHIFTER
303009	UNIVERSAL CABLE
303020	TJ CABLE SHIFTER
303025L	DIVORCED CASE SHIFTER & MOUNT
303026R	DIVORCED CASE SHIFTER & MOUNT



The Atlas 2 speed (left) in comparison to the NP231 (right) with a fixed yoke kit

CUSTOM BUILD YOUR ATLAS 4 SPEED TRANSFER CASE

1. GEAR RATIO — PAGE 6

ATLAS4-20	(1:1 / 2.0:1 / 2.72:1 / 5.44:1)
ATLAS4-30	(1:1 / 2.72:1 / 3.0:1 / 8.16:1)
ATLAS4-38	(1:1 / 2.72:1 / 3.8:1 / 10.34:1)
ATLAS4-43	(1:1 / 2.72:1 / 4.3:1 / 11.70:1)

2. INPUT SPLINE & CASE CONFIGURATION — PAGES 11-21

LEFT DROP	RIGHT DROP	
A421L	A421R	
A423L	A423R	
A423L-LONG		LONG 23 SPLINE
A423L-SHORT		JEEP 42RLE TRANS/JKs
A427L	A427R	
A429L	A429R	
A431L	A431R	
A432L	A432R	
A434L	A434R	FORD 34 SPL.

3. CASE OPTIONS — PAGES 22-23

305100	LEFT DROP
305101	RIGHT DROP

4. SHIFT CONTROL OPTIONS — PAGES 32

301510	LEFT DROP
301511	RIGHT DROP

5. TAILHOUSING OPTIONS — PAGES 24-25

ALT32	STANDARD TAILHOUSING
AST32	SHORT TAILHOUSING
ALT32HD	STANDARD TAILHOUSING (300M)
AST32HD	SHORT TAILHOUSING (300M)
AVT32HD	GM VSS TAILHOUSING (300M)

6. FRONT OUTPUT

AF32	32 SPLINE FRONT OUTPUT

7. YOKE OPTIONS (list rear output 1st) — PAGES 22-23

A1310	32 SPLINE YOKE (non C.V.)
A1310CV	32 SPLINE YOKE
A1330CV	32 SPLINE YOKE
A1350	32 SPLINE YOKE (non C.V.)
A1350CV	32 SPLINE YOKE ($65.00)
A1410	32 SPLINE YOKE (non C.V.)strap style
A1410U	32 SPLINE YOKE (non cv) u-bolt
AF1300	32 SPLINE FLANGE YOKE 1310-1350
AF1410	32 SPLINE FLANGE YOKE

8. SPEEDOMETER OPTIONS — PAGE 26-27

301506	*MECH. SPEEDOMETER HOUSING
300621	SPEEDOMETER HOLE PLUG
300640	*ELEC. SPEEDOMETER (TJ)

*Does not include the speedometer drive gear. See **Page 29**.

PAGES 32-33

9. SHIFTER OPTIONS SOLD W/ ATLAS

344000	UNIVERSAL RIGHT or LEFT
344002	TJ AUTOMATIC
344003	TJ MANUAL
344004	BRONCO
344005	ZJ
344006	EXPLORER, BRONCO II
344007	XJ
344008	JK
303009-4	UNIVERSAL CABLE
303020-4	TJ CABLE SHIFTER

10. REDUCTION HOUSING SHIFTER

344020	CABLE SHIFT REDUCTION BOX

Note: The Atlas 4-speed will not work in 2012 and newer JKs with the auto transmission due to computer programming issues. The Atlas 2 speed is the only option for these Jeeps.

Stock OEM output shafts:
We stock several OE output shafts and have good sources to obtain others. If you need a replacement shaft to fit your application, and its not listed just give us a call.

Shafts that we stock:

NV4500 4WD 29spl. - **P/N 52-0206**

TH350 4WD 27spl. - **P/N 52-1200**

TH400 4WD 32spl. - **P/N 52-7001**
2.40" stickout length from trans.

TH400 4WD 32spl. - **P/N 52-7002**
1.40" stickout length from trans.

700R 4WD 27spl. - **P/N 52-7450**

4L60E 4WD 27spl. - **P/N 52-7460**

ATLAS ADAPTER SELECTION CHART

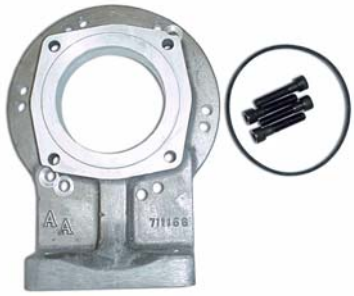
The information listed below is to aid in the selection of the proper Atlas transfer case for the transmission you've selected. On certain transmission applications, we've listed a couple of options when coupling the transmission to the transfer case. The different options usually come about from different adapter lengths, giving you the choice for a longer or shorter drivetrain. With the diversity of adapters we offer, we could actually offer up to 5 or 6 ways to couple some of the different transmissions to the 11 different Atlas input shafts; however, we are trying to simplify the choices and applications. This chart along with the Atlas input spline information listed on the proceeding pages should help with your Atlas transfer case selection.

ATLAS TRANSFER CASE ADAPTER SELECTION CHART FOR GM, FORD, JEEP & DODGE MANUAL & AUTO TRANSMISSIONS	ADAPTER KIT, ADAPTER HOUSING OR STOCK HOUSING	ATLAS INPUT SPLINE	ATLAS TRANSFER CASE ADAPTER SELECTION CHART FOR GM, FORD, JEEP & DODGE AUTOMATIC TRANSMISSIONS	ADAPTER KIT, ADAPTER HOUSING OR STOCK HOUSING	ATLAS INPUT SPLINE
GM SM420 4 SPEED *10.5" CASE LENGTH*	50-9702 (2) *5.25" ADAP.*	23	GM TH350 2WD TRANS. *21.5" CASE LENGTH*	50-6300 (2,3) 50-6802 (3)	23 23
GM SM465 4WD 10 SPL. *12" CASE LENGTH*	51-9807 (7) *3.5" ADAPTER*	10	GM TH350 4WD TRANS. *21.5" CASE LENGTH*	50-6304 (2) AS-6800 (5)	23 27
GM SM465 2WD 35 SPL. *12" CASE LENGTH (NOTE 9)*	51-9807 (4,7) *3.5" ADAPTER*	35	GM TH400 2WD TRANS. *SHAFT STICKOUT OF 5" (NOTE 9)*	51-6400 (4)	32
FORD T & C 4 SPEED O.D. *10.25" CASE LENGTH (4WD trans)*	STOCK (5,8)	31 OR 28	GM TH400 4WD TRANS. *SHAFT STICKOUT OF 1.5" (NOTE 9)*	AS-6401 (5)	32
FORD & JEEP T98 4 SPEED *11.87" CASE LENGTH*	50-7503 (3,7) *3.25" ADAP.*	23	GM TH400 4WD TRANS. *SHAFT STICKOUT OF 2.5" (NOTE 9)*	AS-6401 & AS-0404 (5)	32
JEEP T18 4 SPEED *11.87" CASE LENGTH*	50-7502 (3,7) *3.25" ADAP.*	23	GM 4L80 & 4L80E 4SP TRANS. *USE GM 4WD SHAFT (NOTE 9)*	51-6408 & see Page 19 (5)	32
FORD T18 4 SPEED *11.87" CASE LENGTH*	50-7500 (3,8,7) *3.25" ADAP.*	23	GM 700R / 4L60 O/D 4 SPEED *23.375" CASE LENGTH* 2WD TRANS	50-9102 (3)	23
FORD T19 4 SPEED *11.87" CASE LENGTH*	50-6501 (3,8,7) *3.25" ADAP.*	23	GM 700R / 4L60 O/D 4 SPEED *23.375" CASE* 4WD TRANS	AS-9111 (5)	27
FORD NP435 4 SPEED *10.87" CASE LENGTH*	50-3801 (3,8,7) *4.25" ADAP.*	23	GM 4L60E 2WD & 4WD *23.375" CASE LENGTH*	50-0404 (3)	23
1980 to 1986 STOCK JEEP TRANSMISSIONS	STOCK ADAPTER	23	GM 4L60E 4WD TRANS. *23.375" CASE LENGTH*	AS-9111 (5,10)	27
1987& NEWER STOCK JEEP TRANS *21 SPL. OR 23 SPL.*	STOCK (7) ADAPTER	21 OR 23	GM 4L60E 2WD *W/ REMOVABLE BELLHOUSING*	50-0405 & E 50-9102 (3)	23
GM NV4500 4WD 32 SPL. *12.375" CASE LENGTH*	51-0205 (5) 51-0220	32	GM 4L60E 4WD TRANS. *W/ REMOVABLE BELLHOUSING*	50-0405 & E AS-9111	27
DODGE NV4500 4WD 23 SPL. *12.375 CASE LENGTH*	STOCK (5,7) *6.3" ADAPTER*	23	GM 4L60E 4WD TRANS. SHORTY *W/ REMOVABLE BELLHOUSING*	50-9300 (3) 50-9305 (3)	23
DODGE NV4500 4WD 29 SPL.	STOCK (5,7) *6.3" ADAPTER*	29	GM 6L80 6L90	50-9600	32 or 29
FORD ZF 4WD TRANS.	STOCK (1,5,7)	31	FORD C4 3 SPEED TRANS. *REPLACING A BRONCO DANA 20*	STOCK (5,8)	28
GM MUNCIE 4 SPEED *10" CASE LENGTH*	50-6000 (2,3,7) *5" ADAPTER*	23	FORD C4 3 SPEED TRANS. *ALL OTHER VEHICLES*	50-8100 (3)	23
NP203 ADAPTER	50-8810	10	SHORTY C4 FORD TRANS.	50-2903/2905	27
GM ZF 6SP S6-650 TRANS	SEE PAGE 14	29	ALLISON 1000 TRANS.	SEE PAGE 14	29
TACOMA TRANS 23 SPLINE TACOMA TRANS 26 SPLINE	50-5710 50-5711	23 23	FORD AOD EARLY 4SP 4WD *1987 & EARLIER* 2WD TRANS	STOCK (1,5,7) 50-2902 (3,7)	31 23
POWERGLIDE (automatic)	50-9200	27	FORD AOD LATE 4 SP 4WD *1988 & UP* 2WD TRANS	STOCK (1,5,7) 50-2901 (3,7)	31 23
NISSAN TITAN (automatic)	50-1114	32NT			
Toyota Crawler Box to Atlas Case	50-5915	23	FORD C6 3 SP. TRANS. *20" CASE LENGTH*	STOCK (1,5,7)	31
			FORD EXPLORER/RANGER/BRONCO II	STOCK (5)	25
			1980-11 JEEP AUTOMATICS	STOCK (1,5)	21 or 23

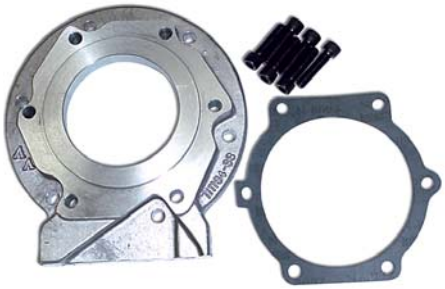
(1) OUTPUT SHAFT MAY NEED TO BE SHORTENED OR A SPACER ADAPTER MAY NEED TO BE USED. See **Page 10**.
(2) THIS KIT USES A SPUD SHAFT
(3) NEW OUTPUT SHAFT MUST BE INSTALLED
(4) USES A STOCK 2WD OUTPUT SHAFT
(5) USES A STOCK 4WD OUTPUT SHAFT
(6) THIS KIT SHOULD BE USED IN CONJUNCTION WITH A 700R KIT
(7) THE CASTING IN THIS KIT ONLY HAS ONE ROTATION AVAILABLE
(8) THIS TRANSMISSION, IF CURRENTLY ADAPTED TO A BRONCO DANA 20 TRANSFER CASE, CAN USE AN ATLAS 28 SPLINE TRANSFER CASE AS A DIRECT BOLT UP TO THE TRANSMISSION ADAPTER.
(9) THE OUTPUT SHAFT MUST BE SHORTENED TO BE A FLUSH STICKOUT WITH THE BACK SIDE OF THE ADAPTER HOUSING.
(10) A RELUCTOR RING AND SENSOR KIT MUST BE PURCHASED, P/N 716073

SM465 Adapter Parts Required:
(1) 51-9807 Adapter Housing
(1) 716515 SM465 Gasket
(7) 723723 3/8" H.H.C.S.
(1) 723711 3/8" Stud Bolt
(8) 723704 3/8" Lock Washer
(1) 723701 3/8"-16 Nut
In addition, the 35 spline SM465 Requires:
(1) 716457 Set Collar

P/N AS-6800 - Includes a 1.5" adapter, an o-ring, 4 metric and 4 standard socket head cap screws.



P/N AS-6401 - Includes a 1.25" adapter, a gasket, and 6 standard socket head cap screws.



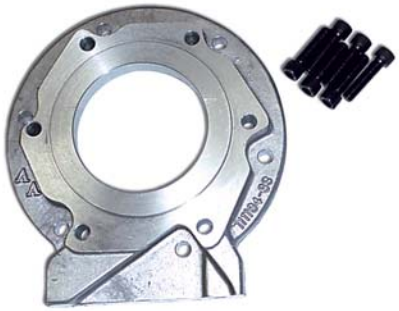
P/N AS-9111 - Includes a 2.5" adapter, an o-ring, 4 metric and 4 standard hex head cap screws.
(adapter not shown)

Dodge NV4500 4WD Requires:
A stock Dodge tailhousing.

23 spline transmissions retain the stock seal in this housing.
29 spline transmissions require this seal to be removed.

GM NV4500 4WD Requires:
(1) 51-0205 Adapter hsg.
(8) 720028 S.H.C.S.
(1) 51-0220 1.625" spacer
(6) 723766 S.H.C.S.

4.25" TH400 ADAPTER HOUSING:
(1) 51-6400 Adapter Housing
(1) 716510 Gasket
(6) 723723 3/8"-16 x 1-1/2" H.H.C.S.
(6) 723704 3/8" Lockwashers



GM 4L80E 4WD Requires:
(1) AS-6408 Adapter housing
(1) 50-6409 or 50-6410 1.625" Reluctor kit
(6) 720028 S.H.C.S.

ALLISON & GM ZF S6-650 TRANSMISSION:
When coupling to these transmission, a special drilled "CHEVY" case is required. When coupled to the Allison transmission, the shifters for the Atlas will require some modifications. Cable shifters cannot be used with the Allison tranmission.

Spacer Adapters:

P/N AS-0404 - Includes a 1" spacer adapter, 6 longer studs, 6 lockwashers, and 6 nuts.

P/N AS-8603 - Includes a 3/4" spacer adapter and 6 bolts.

P/N AS-8610 - Includes a 1/2" spacer adapter, 6 longer studs, 6 lockwashers, and 6 nuts.

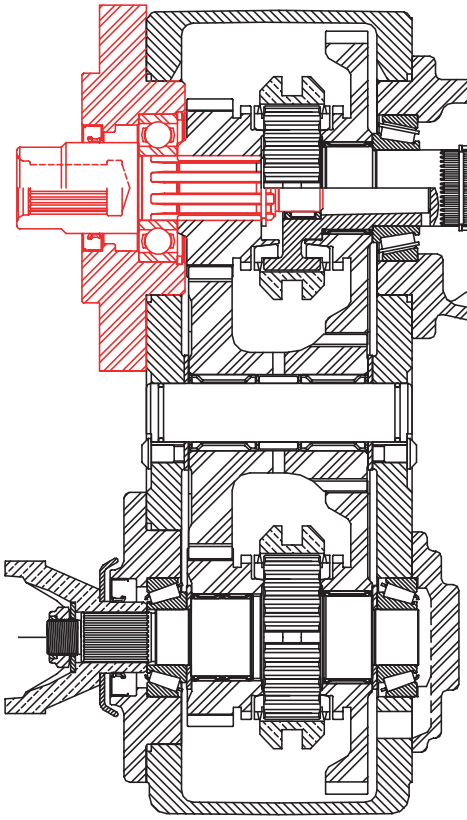
GM NP203 REDUCTION BOX:

If you're looking for the ultimate low gear option, we offer an adapter that couples a NP203 reduction box in front of the Atlas transfer case. This NP203 must be coupled to a TH350, 700R-4, TH400 or SM465. Transfer case linkage, crossmember, and floorboard modifications are necessary. **P/N 50-8810** couples the Atlas to this NP203 reduction box. The input of the Atlas must be equipped with a 10 spline shaft. The length of the NP203 and adapter to the Atlas is 10.0" long.

ATLAS FRONT INPUT SHAFT

The Atlas is designed to fit numerous types of transmissions. The multitude of Atlas inputs are designed to fit to various stock transmission output shaft splines. Depending on the transmission of your choice, the Atlas can be bolted to the transmission using either a stock adapter or one of our transfer case adapter housings. When using a transmission out of a 2WD vehicle or even with some 4WD transmissions, you may be required to install a complete adapter kit which would include a new output shaft. This requirement is due to either the length of the output shaft or the length of the stock adapter being too long for your application.

The following pages list the different available input splines for the Atlas. You must make sure that your transmission has the proper bolt pattern and proper output shaft stickout length.



Incorrect output shaft lengths or improper indexing adapters can cause internal damage to the unit, voiding the warranty.

Please read the following information to verify the correct application. The Atlas 2 speed diagram (left) has a highlighted section in red. This highlighted portion of the Atlas 2 speed is similar to what is shown under each input spline option on the following pages. These inputs show the recommended mating spline length requirements. The Atlas 4 speed has a similar type of input to mate to the transmission. We have listed the shaft length allowed past the adapter housing that the 4 speed will accept (also call stickout length).

Please confirm your spline engagement to avoid any problems.

Input shaft changes: Each Atlas is custom built to fit your vehicle specifications. Many times we find that customers end up changing drivetrain components, which then also requires changes to the Atlas. The most common change is the input shaft spline to match a new transmission. The Atlas input can be changed without to much difficulties. We offer instructions that can be sent to you or you can view the procedure online at www.advanceadapters.com.

Some additional components will be required when changing input shafts.

Parts required to change out to a new front input Atlas 2 Speed:

- **(1) 300499** - Input seal for 29, 31, 32, 34 & 35 splined input shafts
- **(1) 300500** - Input seal for 10, 21, 23, 25, 27 & 28 splined input shafts
- **(1) 300490** - O-ring for input ring
- **(1) 300510** - Sealed bearing
- **(2) 300358** - Cluster pin o-rings
- **(1) 716453** - Snap ring
- **(6) 723730** - Front retainer bolts
- **(1) 301400** - Access cover gasket
- **(1) 716455** - Snap ring

The input shafts have undergone one change over the years which was the internal spline of the drive gear that fastens to the shaft. The splines that have been used are a 6 spline and a 32 spline. We have made it fairly simple to identify which application you have by adding a “G” to the four digit serial number of each case that has the 32 spline drive gear requirements. In 2009 we switched to a 6 digit number machined into the case, these cases do not have a “G” on them but they are the 32 spline input to gear applications.

Atlas 2 speed inputs: Add an “A” at the end of these numbers if your Atlas serial number has a “G” at the beginning or is a 6 digit serial number. We have stopped manufacturing some of the 6 spline inputs, please call to check availability if doing a input change on a early transfer case.

- **300012** - Long 23 spline input
- **300013** - Short 23 spline input
- **300014** - Nissan 32 spl. input
- **300034** - 34 spline input
- **300111** - 35 spline input
- **300112** - 23 spline input
- **300113** - 29 spline input
- **300114** - 10 spline input
- **300115** - 31 spline input
- **300116** - 32 spline input
- **300117** - 27 spline input
- **300118** - 28 spl. long input
- **300118S** - 28 spl. short input
- **300119** - 21 spline input
- **300120** - 25 spline input

The input shafts for the Atlas 4 speed are late model stock New Process inputs gears. These are the new gear pitch design from New Process. *If the wrong year input is used damage can occur to the planetary assembly.* The 4 speed case requires the disassembly of the planetary housing. Instructions for this change can be sent to you or viewed online at www.Advanceadapters.com.

Parts required to change out to a new front input:

(1) 305307 - Input pocket bearing
(1) 305308 - Input pocket bearing (used on 29 & 34 input gear only)
(1) 305300 - Input bearing (except 31& 34 spline)
(1) 340407 - Snap ring

Atlas 4 speed inputs:

305021 - 21 spline input
305023S - Short 23 spline input
305023 - 23 spline input
305023L - Long 23 spline input
305027 - 27 spline input
305029 - 29 spline input
305032 - 32 spline input
305034 - 34 spline input

31 & 34 spline inputs use a larger bearing and bearing retainer. Switching to one of these input splines or from one of these spline to one of the other inputs listed above will require other components. Please call for these parts & prices.

JEEP 21 SPLINE

The 21 spline Atlas was designed to fit Jeeps that were originally equipped with a 4 cylinder (and some 6 cylinders). Jeeps 1987 & up (with a 4 and some 6 cyl.) used 1 of 3 transmissions: the AX5, the Peugeot or AW4. The output shaft on these transmissions are either flush or protrude approximately a 1/2" from the stock transmission adapter. The AW4 transmission was most commonly found in the early Jeep Cherokees. All 4 cylinders manual transmission and most 4.0L 6 cylinder non-high output engines seem to be 21 spline transmissions; however, we recommend verifying the spline count on these transmission applications. The Jeep high output 4.0L 6 cylinder with the AW4 should be a 23 spline output shaft. ***NOTE:*** The 21 splines on these transmissions are very small in diameter, and thus we have seen the stock output shaft break on many engine converted vehicles.

When coupling an Atlas to these transmissions, the factory adapter is used. Due to the different output stickout lengths, vehicles equipped with a Peugeot and AW4 will require a 1/2" spacer plate to obtain proper spline engagement. In 1997, late model AX5 transmissions were changed to have an output shaft that protrudes a 1/2" from the stock tailhousing. Although this transmission can bolt directly to the Atlas 2 speed transfer case, we recommend using the 1/2" spacer plate for transfer case shifter clearance. This spacer plate should only be used on an AX5 that has a 1/2" output shaft stickout.

21 Spline Input For:	Part Number:	Transmission Shaft Stickout Length:	
Atlas 2 Left & Right Drop:	**A21**	**.375"**	Stickout length is the length that the shaft protrudes from the rear of the transmision with the adapter installed. The measurement is the length that the Atlas will accept.
Atlas 4 Left Drop:	**A421L**	**.500"**	
Atlas 4 Right Drop:	**A421R**	**.500"**	

1/2" Spacer Adapter: P/N AS-8610 (not need on Atlas 4 speeds)

JEEP & DODGE 23 SPLINE & 2012 JEEP 26 SPLINE:

STOCK JEEP TRANSMISSIONS:

Stock Jeep transmissions 1980 & up with a 6 cylinder or larger engine were normally equipped with a 23 spline output shaft (except Peugeot). Since the Atlas was designed as a Jeep heavy-duty, low-geared transfer case replacement, it will bolt up directly to the stock Jeep transmission tailhousing that is equipped with the 23 spline output shaft. In these year Jeeps, the stock transfer cases used were both a driver's side (left hand drop) and passenger side (right hand drop) front driveshaft. The units listed accommodate both stock transfer case configurations.

Some of the later model Grand Cherokees with the A518, A500 & AW4 transmission will have some spline depth interference. On these applications, you may be required to use our spacer adapter **P/N AS-0404**. ***Failure to use this plate (when necessary) will cause damage to the Atlas.***

The Atlas 23 spline transfer cases can be ordered in any low gear ratio offered for a 2 speed Atlas. The 4 speed Atlas is also an option for this spline count. These cases would use a ***STD. 23 spline input***.

JEEP & DODGE 42RLE TRANSMISSION:

This automatic overdrive transmission was used in Jeep Wranglers from 2003 through 2011 in both the Jeep TJ & JK, and Dodge Dakotas 2004-2009. Both the 2 speed and 4 speed Atlas transfer cases use the ***short 23 spline input***.

JEEP 2012 JK AUTO AND MANUAL TRANSMISSIONS:

This automatic overdrive transmission is used in Jeep JKs from 2012 and newer. The Atlas 2 speed uses a new male ***26 spline flanged shaft*** to couple to the A580 transmission. Starting in 2012, Jeeps with a manual transmission stayed with NSG-370 which is a short 23 spline female (see information below). The Atlas 4 speed is not an option on the automatic transmission due to the computer programming issues on the Jeep drivetrain. See **Page 30**.

JEEP 45RFE TRANSMISSION:

The 45RFE transmission was used in 1999 to 2004 WJ Grand Cherokees with the 4.7 V8 and a NP247 transfer case. This transmission was also used in 2002 & newer Dodge Durango and Dakotas with a 4.7 V8. This transmission had a 1" recessed output shaft from the rear of the transmission. We offer the Atlas transfer case with a ***longer 23 spline input*** shaft to couple to the 45RFE shorter transmission shaft length.

ADDITIONAL 23 SPLINE TRANSMISSIONS:

The transmission output shaft length or Atlas input shaft length cannot be determined by transmission model only. The following are some transmission models that may differ from the 23 spline data:

2004 ZJ 4.7L - ***5-45RFE*** NV247 stock transfer case (approx. 1" recessed output shaft)
Requires ***"Long" Atlas 23 input***

2004 Ram 5.7L - ***5-45RFE*** NV244 stock transfer case (approx. 1/4" output shaft stickout with 1.55" spline)
(03-10) 5-45RFE Requires ***"Short" Atlas 23 input***

2001 Ram - ***45RFE*** NV231 stock transfer case (approx. 1/2" output shaft stickout with 2.0" spline)
Requires ***"STD" Atlas 23 input*** & **AS-8603**

2004 Durango - ***5-45RFE*** (3/8" output shaft stickout)
Requires ***"Short" Atlas 23 input***

2005 & UP Manual Jeep 6 speed - ***NSG-370*** 23 spline Wrangler 4 cyl. & 6 cyl. transmission gear ratios of 4.459, 2.614, 1.723, 1.2, 1.0, .838 & R4.06 (output shaft approx .210" positive stickout). "Honsel" is cast into passenger side.
Requires ***"STD" Atlas 23 input***

23 Spline Input For:		Part Number:	Transmission Shaft Stickout Length:
Atlas 2 *STD*	Left & Right Drop:	A23	.375"
Atlas 2 *LONG*	Left & Right Drop:	A23LONG	.375"
Atlas 2 *SHORT*	Left & Right Drop:	A23SHORT	.375"
Atlas 4 *STD*	Left Drop:	A423L	.500"
Atlas 4 *STD*	Right Drop:	A423R	.500"
Atlas 4 *LONG*	Left Drop:	A423L-LONG	.500"
Atlas 4 *SHORT*	Left Drop:	A423L-SHORT	.500"

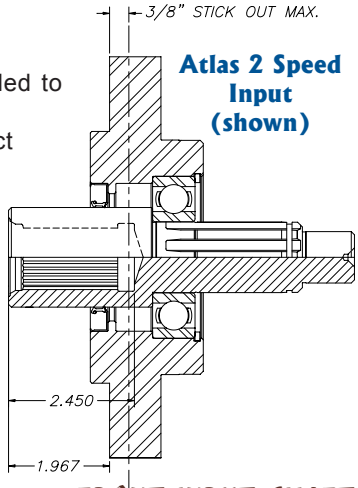
Stickout length is the length that the shaft protrudes from the rear of the transmision with the adapter installed. The measurement is the length that the Atlas will accept.

1" Spacer: P/N AS-0404 **3/4" Spacer: P/N AS-8603** **1/2" Spacer: P/N AS-8610**

STOCK DODGE TRANSMISSIONS:

The Dodge NV4500 is probably the most popular Dodge transmission that we see coupled to the Atlas. Most Dodge 4WD transmissions are equipped with a 23 spline output shaft. The Dodge 4WD NV4500 (1993-2000) has a 23 spline output shaft and has the correct tailhousing to bolt directly to the 23 spline Atlas transfer case.

Dodge also has a heavy-duty version of the NV4500 transmission that was bolted up to a Cummins diesel engine. This transmission, along with the 2001 & newer gas version NV4500 transmission, was equipped with a 29 spline output shaft. We offer an Atlas input spline for these heavy-duty and late model transmissions *(See the 29 Spline section for more information)*.



GM & DODGE 29 SPLINE:

Dodge NV4500: The 29 spline Atlas was designed to fit the 4WD Dodge heavy-duty NV4500 transmission and the 2001 & newer gas version NV4500 transmissions. When coupling an Atlas to this transmission, the stock Dodge 4WD tailhousing can be retained. The Dodge tailhousing bolt pattern is shown on the rotation Option #1 found on **Page 22**.

When using an Atlas left hand drop transfer case, the stock Dodge tailhousing requires the removal of the stock transfer case shifter bosses. The removal of these two bosses provide the necessary Atlas shifter clearance. ***NOTE:*** The seal in this stock tailhousing must also be removed because it will interfere with the Atlas input.

GM Transmissions: GM switched the spline count on some of their transmissions to the 29 spline output. The splines on these transmissions were the same as what Dodge had used on the NV4500 transmission. So the 29 spline input for the Atlas will work with all of these GM and Dodge transmission equipped with a 29 spline output shaft.

ZF S6-650: The ZF manual 6 speed is a 29 spline transmission when coupled to the Duramax and the 8.1L. This transmission can be directly mounted to the Atlas transfer case. The Atlas must be equipped with a "Chevy" case configuration and will bolt directly to the stock transmission 4WD adapter. The VSS tailhousing option would provide the GM computer the speedometer signal for this application.

Allison 4WD: These 5 and 6 speed automatics are also a 29 spline transmission when coupled to the same Duramax and the 8.1L. The Atlas must be equipped with a "Chevy" case configuration. We offer two modified stock adapters for the Allison transmission. These adapters provide a rear speed sensor in the adapter that always sends the output shaft speed signal to the computer. We have found that putting the sensor in the tailhousing on these transmissions with the various low ratios will cause the computer to read it as transmission slippage and throw trouble codes.

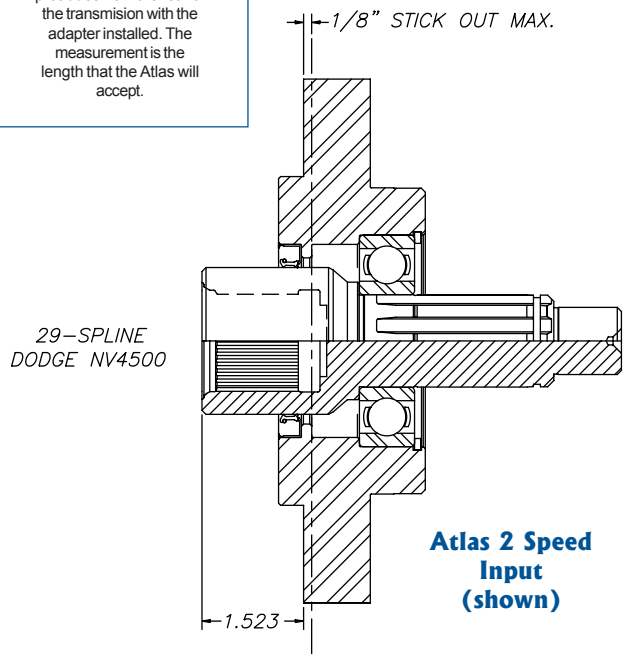
The adapters we offer are reworked OEM components and we require your stock tailhousing as a core. Part numbers for these adapters are **50-9420** and **50-9421**.

6L90 4WD: 6 speed automatic is also a 29 spline transmission. This transmission can be used with our **50-9600** kit. The VSS tailhousing option would provide the GM computer the speedometer signal for this application.

Dodge & GM Inputs: Since all of these transmissions are used in larger vehicle applications, we have had requests for upgrade options on the Atlas. One limited upgrade offered for these transmissions is the heavy duty Atlas input (300M). This was developed for some applications that had an increase in horsepower and needed extra strength. The heavy duty input is not needed for all applications, but it's available if you feel you'll need it.

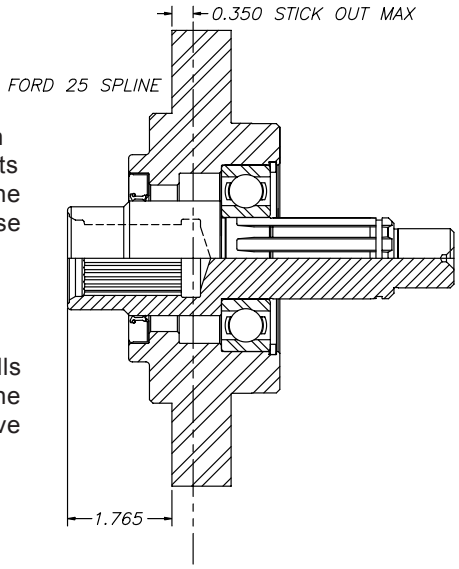
29 Spline Input For:	Part Number:	Transmission Shaft Stickout Length:
Atlas 2 Left & Right Drop:	**A29**	**.125"**
Atlas 2 Heavy Duty Input Left & Right Drop:	**A29HD**	**.125"**
Atlas 4 Left Drop:	**A429L**	**.500"**
Atlas 4 Right Drop:	**A429R**	**.500"**

Stickout length is the length that the shaft protrudes from the rear of the transmision with the adapter installed. The measurement is the length that the Atlas will accept.



Atlas 2 Speed Input (shown)

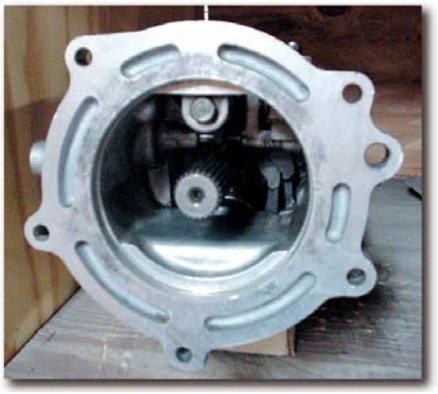
FORD 25 SPLINE:

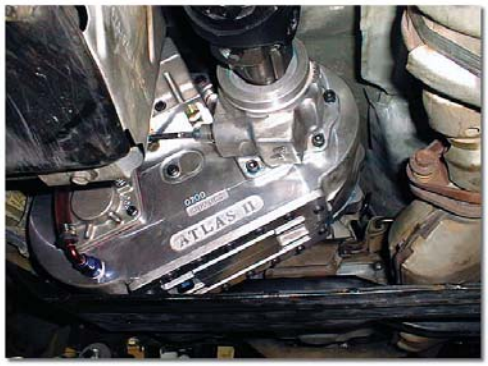


The 25 spline Atlas was designed to fit *only* the Bronco IIs, Ford Rangers, and Explorers. The stock transmissions used in these vehicles were normally coupled to a Borg Warner 1350 transfer case. The bolt pattern on the face of the B/W 1350 is a 5-bolt pattern which we mirror on the Atlas transfer case. Fitting an Atlas into these vehicles will require either a body lift (such as the Daystar mounts we offer on **Page 4**) or modifications to the stock crossmember. The rotation of the Atlas is identical to stock. The Atlas 2 speed is the only unit available for these transmissions:

Atlas 2 Speed: P/N A25

Photo of a stock Ford tailhousing. All Ford V6 Explorers, Rangers, and Bronco IIs have the same bolt pattern and splines when coupled to a 1350 transfer case. The adapters we manufacture for these vehicles to fit the C4 and AOD would also have this same pattern.

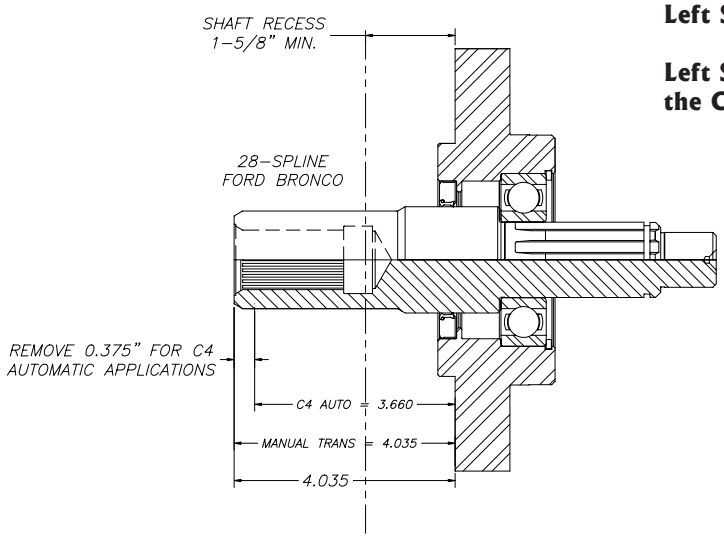




FORD 28 SPLINE:

The 28 spline Atlas was designed to fit *only* the 1966-77 Broncos. The stock transmissions used in these vehicles were normally coupled to a Dana 20 transfer case. The bolt pattern on the face of the Dana 20 is a 6-bolt hex pattern, which we mirror on the Atlas transfer case. The rotation options of the Atlas into these vehicles are 42 degrees (which is stock), 35 degrees (for additional ground clearance), and 28 degrees (requires some internal frame modifications). ***NOTE:*** When bolting the Atlas up to an automatic C4 transmission, we offer a shorter Atlas input shaft to avoid spline run-out. When using a NP435 or T18 transmission (with one of our adapter housings), the threaded portion of the transmission output shaft must be removed.

The Atlas 2 speed is the only unit available for these transmissions: (A body lift is recommended)



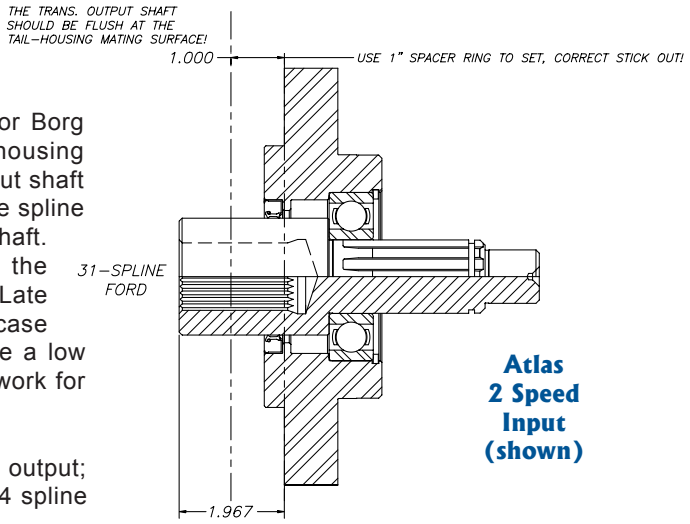
Left Side Front Driveshaft Atlas 2 Speed: P/N A28

Left Side Front Driveshaft Atlas 2 Speed for the C4 transmission: P/N A28C4

FORD 31 SPLINE:

The 31 spline Atlas was designed to fit the 4WD Full Size Ford transmissions. The stock transmissions used in these vehicles were normally coupled to either a NP205, NP208 or Borg Warner 1356. The bolt pattern on these transmission tailhousing adapters is identical to a stock Jeep. Ford used various output shaft stickout lengths. *Caution* should be used in order to avoid the spline portion of the shaft from "bottoming out" in the Atlas input shaft. Some applications that have an output shaft stickout past the tailhousing will require a 1" spacer adapter, **P/N AS-0404**. Late model full size Fords with the Borg Warner 4406 transfer case and the vacuum activated electric lock front axle will require a low range switch on the Atlas shift housing and some electrical work for the front axle.

Ford ZF 5 speeds work fine and are equiped with a 31 spline output; however, the 6 speed ZF diesel will not since Ford used a 24 spline on this transmission.


THE TRANS. OUTPUT SHAFT SHOULD BE FLUSH AT THE TAIL-HOUSING MATING SURFACE!
1.000
USE 1" SPACER RING TO SET, CORRECT STICK OUT!
31-SPLINE FORD
1.967
Atlas 2 Speed Input (shown)

31 Spline Input For:	Part Number:	Transmission Shaft Stickout Length:	
Atlas 2 Left & Right Drop:	**A31**	**.325"**	Stickout length is the length that the shaft protrudes from the rear of the transmision with the adapter installed. The measurement is the length that the Atlas will accept.
Atlas 4 Left Drop:	**A431L**	**.500"**	
Atlas 4 Right Drop:	**A431R**	**.500"**	

FORD 34 SPLINE:

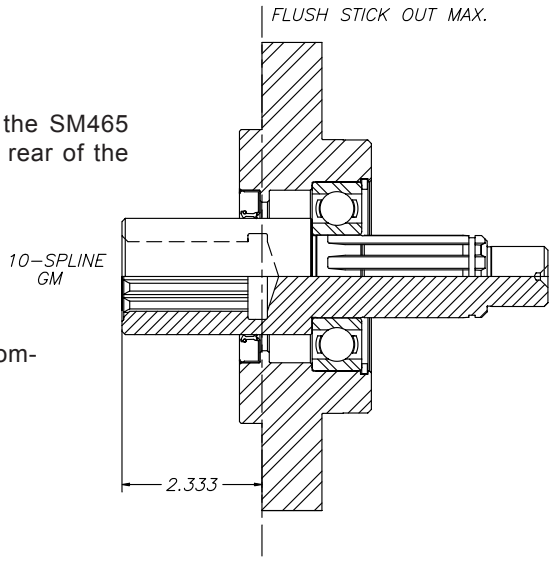
The 34 spline Atlas was designed to fit the 2004 & newer 5R110 (Torqueshift) transmission. This 4WD transmission has the speed sensor in the transmission tailhousing; so when ordering the Atlas tailhousing, a speedometer hole plug is required. The 2003-2009 5R110 torqueshift is a 5 speed automatic that was used in the E250-350 and F250-450 6.0 & 6.4 Diesels. The gear ratios are 3.09, 2.20, 1.538, 1.096, 1.00, .712 & R2.88. To install an Atlas using the stock 4WD tailhousing, you will be required to use a 1" spacer, **P/N AS-0404**.

34 Spline Input For:	Part Number:	Transmission Shaft Stickout Length:	
Atlas 2 Left & Right Drop:	**A34**	**.325"**	Stickout length is the length that the shaft protrudes from the rear of the transmision with the adapter installed. The measurement is the length that the Atlas will accept.
Atlas 4 Left Drop:	**A434L**	**.250"**	
Atlas 4 Right Drop:	**A434R**	**.250"**	

GM 10 SPLINE:

The 10 spline Atlas input was designed to fit *only* the 4WD version of the SM465 transmission. This output shaft protrudes approximately 2-1/2" from the rear of the transmission. When coupling an Atlas to this transmission, you will need one of our adapter housings, the SM465 gasket, and fasteners to bolt the casting to the transmission (**P/N 51-9807**). This adapter housing measures 3-1/2" long and is the shortest adapter that we offer for the SM465. The Atlas 2 speed is the only unit available for this transmission. Due to the adapter length and the transmission size, the cable shifters are not recommended for this transmission/transfer case combination.

Atlas 2 Speed: **P/N A10**



GM 27 SPLINE:

The 27 spline Atlas was designed for transmissions with a 27 spline output. The TH350, Powerglide, 700R, and 4L60E transmissions are the most common GM transmissions equipped with this 27 spline output. These transmissions have various output shaft stickout lengths depending on the vehicle that the transmission was originally removed from.

27 Spline Input For:	Part Number:	Transmission Shaft Stickout Length:	
Atlas 2 Left & Right Drop:	**A27**	**.250"**	Stickout length is the length that the shaft protrudes from the rear of the transmision with the adapter installed. The measurement is the length that the Atlas will accept.
Atlas 4 Left Drop:	**A427L**	**.500"**	
Atlas 4 Right Drop:	**A427R**	**.500"**	

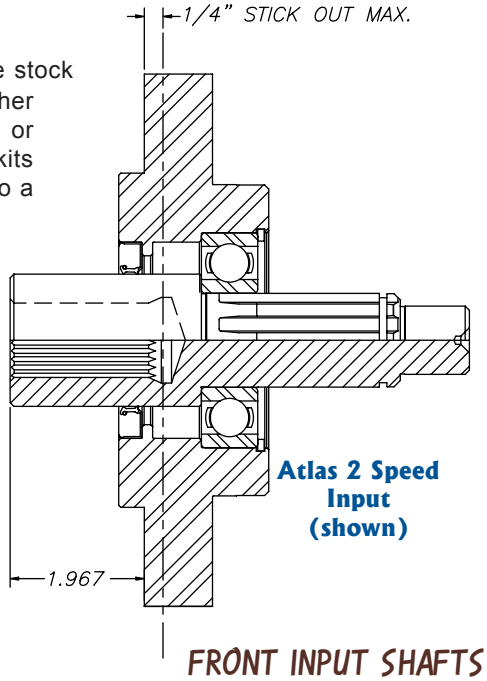
TH350 4WD: When obtaining a TH350 out of a 4WD vehicle, the output shaft will protrude approximately 1" from the rear square flange of the transmission. An adapter housing **(P/N AS-6800)** can be purchased from us to use this transmission with this stock 27 spline 4WD output shaft.

TH350 2WD: When obtaining a TH350 out a 2WD vehicle, be aware that there are three different stickout lengths: 6, 9 & 12 inches. These transmissions would be better suited to either switch to a 4WD TH350 output shaft and use the adapter housing listed above, or use **P/N 50-6300** (3.6" long), or **50-6802** (1.5" long). Both of these kits require the installation of a new output shaft which switches the output spline to a ***23*** spline *(See the 23 Spline section)*.

POWERGLIDE: The Powerglide automatic transmission has gained popularity in rock crawling vehicles. We offer a new cast aluminum adapter and crossmember mount designed to couple the Powerglide to the Atlas transfer case **(Part No. 50-9200)**. The adapter kit requires a shorty 27 spline output shaft to be use when coupling the Powerglide to the Atlas. Two sources to obtain this shaft would be Hughes Performance or B & M.

700R & 4L60 4WD: When obtaining a 700R or 4L60 out of a 4WD vehicle, the output shaft should have a stickout length of 2.75" from the rear square flange of the transmission. Adapter housing **P/N AS-9111** (2.5" long) can be purchased from us to use these transmissions with this stock 27 spline 4WD output shaft.

700R & 4L60 2WD: When obtaining a 700R out of a 2WD vehicle, the stock output shaft will be too long. These transmissions would be better suited to either switch to a 4WD 700R output shaft and use the adapter housing listed above, or use **Part No. 50-6303** (3.6" long), or **50-9102** (1.5" long). Both of these kits require the installation of a new output shaft which switches the output spline to a ***23*** spline *(See the 23 Spline section)*.



4L60E 4WD w/non-removable Bhsg: When obtaining a 4L60E out of a 4WD vehicle, the output shaft stickout length should be 2.75" from the rear square flange of the transmission. Adapter housing **P/N AS-9111** (2.5" long) can be purchased from us to use this transmission with this stock 27 spline 4WD output shaft. ***Note:*** On these transmissions, you must use a reluctor kit, **Part No. 716073**.

4L60E 2WD & 4WD w/non-removable Bhsg:
When obtaining a 4L60E out a 2WD vehicle, the stock output shaft will be too long; or if you have a 4WD transmission and would like to use an adapter housing with the reluctor as part of the kit, you can purchase **P/N 50-0404** (4.6" long). This kit requires the installation of a new output shaft which switches the output spline to a ***23*** spline *(See the 23 Spline section)*. This kit also incorporates a reluctor ring and sensor for proper transmission operation.

4L60E 4WD w/Removable BHSG: When obtaining a 4L60E out of a 4WD vehicle, the output shaft stickout length should be 4.438" from the rear hex bolt flange of the transmission. We offer **P/N 50-0405E** which adapts the hex bolt pattern to a square bolt pattern. This adapter also provides a reluctor sensor and clamp-on reluctor ring. Adapter housing **P/N AS-9111** (2.5" long) can be purchased from us to use this transmission with the stock 27 spline 4WD output shaft.

4L60E 2WD w/Removable BHSG: When obtaining a 4L60E out of a 2WD vehicle, the stock output shaft will be too long. To use this transmission, you will be required to use **P/N 50-0405** (fits 700R shaft) or **P/N 50-0405E** (fits 4L60E shaft) which adapts the hex bolt pattern to a square bolt pattern. This adapter also provides a reluctor sensor and clamp-on reluctor ring. To couple this tranny to the Atlas transfer case, you will then need adapter **P/N 50-9102** (1.5" long). This kit requires the installation of a new output shaft, switching the output shaft spline to a ***23*** spline *(See the 23 Spline section)*.

SHORTY 4L60E ADAPTER w/Removable for the ATLAS 2 Speed:

We are proud to offer the shortest overdrive automatic transmission and transfer case combination on the market today. Our kit, **P/N 50-9300**, is designed for the late model 4L60E transmission with a removable bellhousing. To obtain the adapter length of only .600" we had to manufacture a new transmission output shaft. This shaft is shorter than any other stock shaft made. We mate this assembly with a custom Atlas 2 speed input ring which doubles as the adapter housing, directly coupling the Atlas 2 speed to the 4L60E transmission. The kit also includes a new crossmember support which bolts between the transmission and transfer case. The overall transmission length will vary slight depending on the version of 4L60E transmission obtained. This kit does require the VSS tailhousing option on the transfer case to work with the Compushift controller.

1996-2000 Truck Gen. II V8 - 6.315" bellhousing (22.336" O.A.L.)
2001-2006 Truck Gen. III V8 - 6.945" bellhousing (22.966" O.A.L.)

Compared to a TH350 w/adapter of 23.000" or a 700R with our 50-9102 adapter at 24.875".

This new kit uses a 23 spline output shaft made out of *300M* material. We sell the adapter in a kit or we also offer a complete transmission with our output shaft already installed. Please call for complete package pricing.

SHORTY 4L60E ADAPTER w/Removable for the ATLAS 4 Speed:

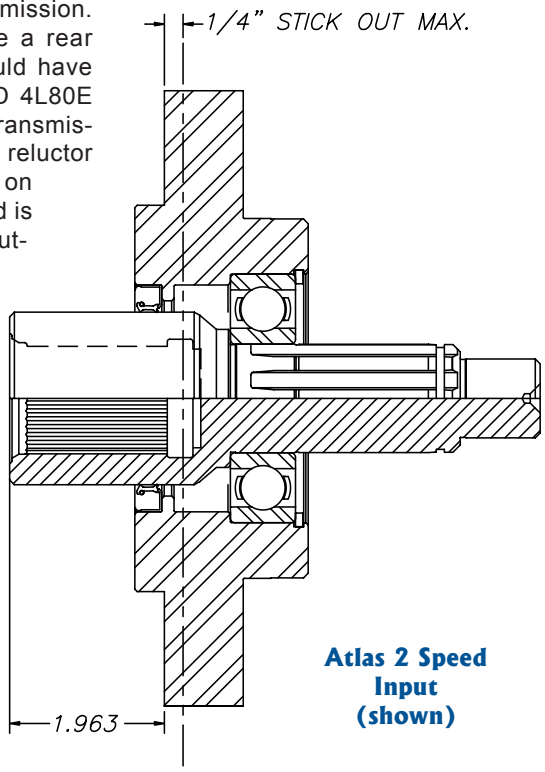
We also offer a shorty adapter for the Atlas 4 speed. The adapter length of 1.625" is shorter than any of our other adapter options. This new kit, **P/N 50-9305**, will use a 23 spline output shaft made out of *300M* material. We also offer a complete transmission with our output shaft already installed. Please call for updated information and complete package pricing. The Atlas should be equipped with a STD. 23 spline input.

GM 32 SPLINE:

TH400: The 32 spline Atlas was primarily designed for the GM TH400 transmission with a 32 spline output shaft. One of the biggest problems with the TH400 transmission is that it was used in numerous vehicles which required numerous output shaft lengths. We estimate there are 7 different output lengths that the TH400 has been equipped with over the years in both 2WD and 4WD applications. We cannot fit all of the stock output shaft lengths; however, the Adapter Selection Charts on **Pages 9 & 10** will assist you with the adapters we do offer. If you do not find an adapter housing to fit the output shaft you have, you may be required to change out the output shaft or use one of the different spacer adapters to fit your shaft length.

4L80E: This transmission was designed by GM to replace the GM TH400 transmission. Like the TH400, the 4L80E has a 32 spline output shaft. The major difference of the 4L80E is that the transmission index diameter is different than the TH400. We have seen 5 different output shaft lengths that were used in the 4L80E transmission. The Selection Charts on **Pages 9 & 10** list the adapter plates that would be used only with the 4WD 4L80E transmission. If you have a 4L80E that has a longer output shaft stickout and the length matches an adapter we have listed under the TH400 section, we can modify a TH400 adapter to work on the 4L80E transmission.

The early 4L80E transmission up to 1995 is normally equipped with an internal reluctor ring on both the transmission input shaft and output shaft. The computer takes both of these readings for the proper shifting and operation of this transmission. We have always ignored the reluctor ring requirement for this transmission since it is internally regulated. We have now learned that the rear reluctor ring is not always installed into the transmission. The basic rule of thumb is 4WD transmissions up to 1996 should have a rear reluctor ring in the main transmission case. All 2WD transmissions should have the rear reluctor in the main transmission case. The 1997 & newer 4WD 4L80E transmissions have a sensor provision; however, the reluctor ring in the transmission is left out. Since this transmission is expensive to rebuild and have a reluctor installed, we now offer a reluctor ring on the adapter housing. The reluctor on the adapter for a Atlas 2 speed is **(P/N 50-6409)**, and for the Atlas 4 speed is **(P/N 50-6410)**. These kits will always provide a 1-to-1 reading on the output even if the transfer case is in low gear. The VSS reluctor in the tailhousing is also an option, but it would require a low range switch to be integrated into the computer system.



Atlas 2 Speed Input (shown)

Note: The information on years and models of the 4L80E transmission mentioned in the above section was obtained from various sources. You should always verify what your transmission is equipped with before beginning a conversion, especially with the 4L80E transmission.

6L80 2 & 4WD: 6 speed automatic is also a 32 spline transmission. This transmission can be used with our **50-9600** kit. The VSS tailhousing option would provide the GM computer the speedometer signal for this application.

GM NV4500 4WD: The GM NV4500 4WD transmission can also be coupled to the Atlas. The stock GM adapter housing has the right index diameter for the transfer case; however, the bolt pattern is incorrect. We have found it easier to use a stock Dodge tailhousing or our replacement Dodge housing, **P/N 51-0205**. Either one of the 6.300" long adapters coupled with our 1-5/8" spacer adapter, **Part No. 51-0220**, allows you to use the stock GM 32 spline output shaft. This casting will not fit the GM harmonic balancer, a spacer tube must be used to replace the balancer on this application.

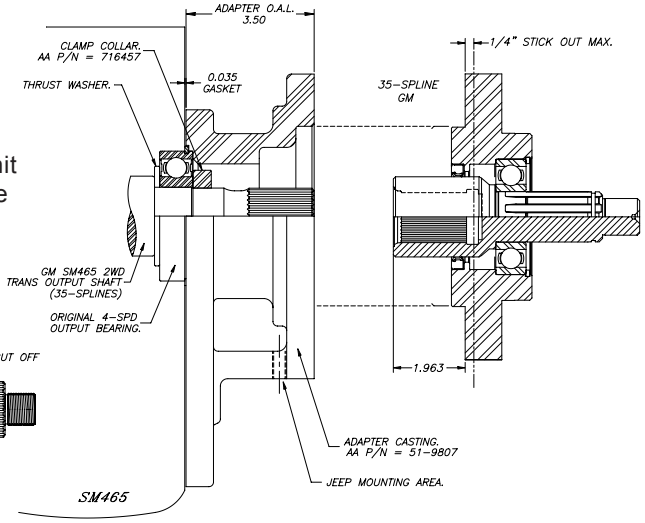
GM Inputs: Since all of these transmissions are used in larger vehicle applications, we have had requests for upgrade options on the Atlas. One limited upgrade offered for these transmissions is the heavy duty Atlas input. This was developed for some applications that had an increase in horsepower and needed extra strength. The heavy duty input is not needed for all applications, but it's available if you feel you'll need it.

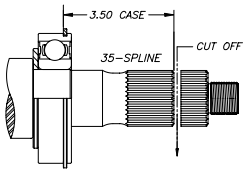
32 Spline Input For:	Part Number:	Transmission Shaft Stickout Length:
Atlas 2 Left & Right Drop:	**A32**	**.250"**
Atlas 2 Heavy Duty Left & Right Drop:	**A32HD**	**.250"**
Atlas 4 Left Drop:	**A432L**	**.500"**
Atlas 4 Right Drop:	**A432R**	**.500"**

Stickout length is the length that the shaft protrudes from the rear of the transmision with the adapter installed. The measurement is the length that the Atlas will accept.

GM 35 SPLINE:

The 35 spline Atlas was designed to fit *only* the 2WD SM465 transmission. This output shaft must be shortened to a length of 3.5" from the rear of the transmission. This shaft must also be locked into position with a set collar. The SM465 is 12" long and offers a 6.58:1 1st. gear ratio. The Atlas 2 speed is the only unit available for this transmission. Due to the adapter length and the transmission size, the cable shifters are not recommended for this transmission/transfer case combination.





Atlas 2 Speed: P/N A35

DIVORCED ATLAS:

The "Divorce Mounted Atlas Transfer Case" has been created to give you all of the great gearing options, parts availability, and strength features to vehicles that require a remote mounted transfer case. Early vehicles sometimes ran this type independent transfer case. It was attached to the powertrain by a small drive shaft coming from the transmission. This transfer case functioned identical to others and had a front and rear driveshaft. The entire transfer case assembly was hung from the frame on a crossmember-type mount. The Divorced Atlas can be built as either a right or left drop unit. The shifters and crossmember are sold as a separate kit to fit the transfer case. When ordering yokes for this unit, 3 are required.

The mount plate included in our kit will give you the rigid mounting location for supporting this gear box to the frame. Prothane bushings and all hardware are included in this kit. It is necessary that you fabricate a support bracket from our transfer case mount to the frame rails of your vehicle. Please be aware that this new mount bracket is very rigid and should be able to withstand the extreme twisting load that the gearing of the Atlas transfer case creates. Keep in mind that a good amount of frame flex may be generated in severe offroading conditions. We only offer the divorced units in the 2 speed configuration.

Atlas 2 Speed: P/N AD32
Left Drop Case Mount and Cable Shifters: P/N 303025L
Right Drop Case Mount and Cable Shifters: P/N 303026R

Atlas Bolt Torque Specifications:

COMPONENT	FASTENER DESCRIPTION	QTY	BOLT SEALANT/THREADLOCK	WASHER	TORQUE SPEC. (Ft-Lbs, N-m)
HOUSING - OIL PAN - BLIND	5/16-18X1 FHCS	10	RTV SILICONE	N	23, 31
HOUSING - OIL PAN - THRU	5/16-18X1 FHCS	4	RTV SILICONE	N	23, 31
HOUSING - OIL PAN - DIVORCED	5/16-18X1 1/4 FHCS	10	RTV SILICONE	N	23, 31
HOUSING - INPUT(MARRIED/DIVORCED)	3/8-16X1 1/4 SHCS	6	RTV SILICONE	Y	40, 54
HOUSING - DIVORCED INPUT	3/8-16X1 1/4 SHCS	6	MED. STRENGTH THREADLOCK	Y	40, 54
HOUSING - REAR OUTPUT	3/8-16X1 1/4 SHCS	5	RTV SILICONE	N	35, 48
HOUSING - FRONT OUTPUT	3/8-16X1 1/4 SHCS	5	RTV SILICONE	N	35, 48
HOUSING - SHIFT RAIL	3/8-16X1 1/4 SHCS	2	RTV SILICONE	N	30, 41
HOUSING - SHIFT RAIL	3/8-16X1 3/4 SHCS	1	RTV SILICONE	N	30, 41
HOUSING - SHIFTER SUPPORT	3/8-16X1 1/4 SHCS	3	RTV SILICONE	N	30, 41
HOUSING - FRONT BRG. CAP	5/16-18X1 FHCS	4	RTV SILICONE	N	23, 34
BRACKET - DIVORCED MOUNT PAN	5/16-18X1 1/4 FHCS	10	RTV SILICONE	N	23, 31
BRACKET - DIVORCED MOUNT INPUT	3/8-16X1 1/4 SHCS	6	MED. STRENGTH THREADLOCK	Y	40, 54
SHAFT - CLUSTER	3/8-16X1/2 HHCS	2	SEAL WASHER	Y	20, 27
RETAINER - SPEEDO	5/16-16X3/4 HHCS	1	RTV SILICONE	N	10, 13
FITTING - SITE TUBE	1/4" NPT	2	RTV SILICONE	N	15, 20
FITTING - BREATHER	90 DEGREE 1/8" NPT	1	RTV SILICONE	N	10, 13
PLUG - OIL PAN	9/16-18 W/MAG	1	SEAL WASHER	Y	10, 13
PLUG - SHIFT HOUSING SWITCH BORE	5/8-18 HHCS	2	SEAL WASHER	Y	12, 16
SWITCH-4WD/LOW RANGE	5/8-18 HHCS	2	NONE	N	12, 16
SHIFT FORK - SHIFT RAIL	3/8-24X1/2 CPSS	2	MED. STRENGTH THREADLOCK	N	12, 16
NUT - YOKE - 26SPL	3/4-16 (INT. FIT)	1	SEAL WASHER	Y	130, 176
NUT - YOKE - 32SPL	7/8-20 (INT. FIT 170in-lbs)	1	SEAL WASHER	Y	150, 204

Toyota Tacoma, Tundra, and T100:

Toyota Tacoma 1995 & 1/2 to 2004 with both the automatic and manual transmission and a 4 cylinder or the V6 can now have an Atlas 2 speed transfer case installed. This also includes the Tundra (2000 to 2004 V6 & V8) or the T100. We use a 3/8" adapter plate that couples the Atlas to your transmission. We offer the Atlas in either a left or right drop, left being for stock installations. The Toyota transmission either had a 23 spline or 26 spline stock output shaft. Our spud shafts couple to either one of these splines and then provides a Jeep 23 spline output. The Atlas would need to be ordered with the following input: Note: On Tacomas, the speedometer output must be verified as to whether it is needed or not.

Atlas 2 Speed: **P/N A23**

NISSAN Titan, Frontier, Xterra:

The Nissan Titan, Frontier, and Xterra are applications suitable for the Atlas transfer case. The Atlas fits the automatic transmission and couples directly to the Nissan output shaft. We manufacture a new input shaft for the Atlas to couple to the Nissan transmission output shaft. The Nissan transmission requires an adapter plate to bolt on the Atlas, **Part No. 50-1114**. The Atlas 2 speed transfer case is the only configuration for Nissans. A complete detailed installation for the Nissan Xterra or Frontier can be found online at www.advanceadapters.com.

Left Side Front Driveshaft Atlas 2 Speed: **P/N A32NT**

NISSAN Hard Body/Pathfinders:

The Nissan Hard body and Pathfinders were offered with two engine options: a 4 or 6 cylinder engine. The 4 cylinder had a transmission the was equipped with a 24 spline output shaft, and the V6 had a 30 spline transmission output shaft. We only offer an adapter to fit the 30 spline transmission to the Atlas transfer case. This adapter is a three plate design with a spud shaft that requires the Atlas to be built with a Ford 31 spline input. The adapter kit, **P/N 50-1115**, is 3.750" long to move the Atlas back far enough to clear the stock crossmember. Currently, the Atlas 2 speed is the only transfer case recommended for this application, as the 4 speed Atlas would probably be too long of an assembly length. This kit retains the stock transmission support. The universal cable shifters would be the best option for this application.

Left Side Front Driveshaft Atlas 2 Speed: **P/N A31NT**

FJ CRUISER & Tacoma 6 speeds :

With all the hype on the new FJ Cruiser, we knew it wouldn't be long before the requests came in for drivetrain swaps. Although it does require a bit of modifying, the option of both the Atlas 2 and 4 speed transfer case is now available to fit to the stock transmission. Our adapter kit part number is **50-5715** (manual trans) and **50-5716** (auto trans). This kit comes with an adapter plate and spud shaft. The shaft allows the FJ Cruiser transmission to bolt up to the Atlas 23 spline transfer case. We recommend using a cable shifter due to the center console configuration in the FJ Cruiser.

Note: FJ Cruisers with an auto trans will require a VSS speedometer connection. Manual transmissions applications will need speedometer verification requirements.

23 Spline Input For:	Part Number:	Transmission Shaft Stickout Length:	
Atlas 2 Left & Right Drop:	A23	.375"	Stickout length is the length that the shaft protrudes from the rear of the transmision with the adapter installed. The measurement is the length that the Atlas will accept.
Atlas 4 Left Drop:	A423L	.500"	
Atlas 4 Right Drop:	A423R	.500"	

OE, Military & Special Applications:

We are committed to offer the you the best transfer case available. It is for this reason that the Atlas is the transfer case used in a production built vehicle for the off-road enthusiast. This manufacturer uses the Atlas because of its reputation and years of reliability. The Atlas has also been used in several military prototype vehicles and is currently in use in overseas production vehicles. This military application is why we now offer the Atlas with a 300M output upgrade. The vehicle is approximately 12,500 lbs., requiring the added strength to the output shaft. The Atlas has been proven flawless in these applications.

As you can see, we are very receptive to new applications for the Atlas, and we are always willing to make changes if needed to fit new applications. If you do not see an Atlas exactly to fit your needs, please contact us directly.

ATLAS ROTATION OPTIONS

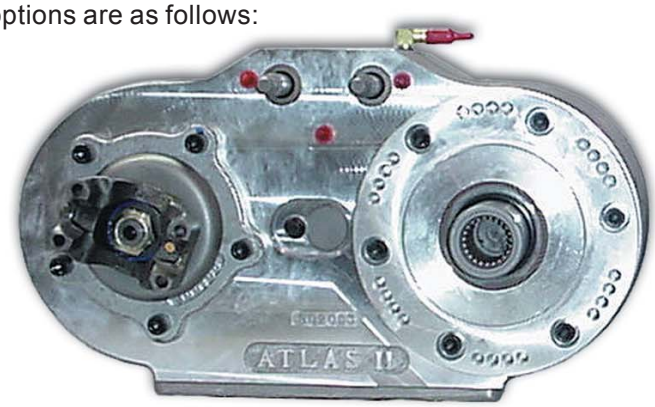
When coupling an Atlas to one of the various stock transmissions or to one of our adapter housings, you will have a number of choices as to the degree of rotations. The drawings that follow represent the stock Jeep and Advance Adapters tailhousing bolt patterns. Once you have identified the bolt pattern on your adapter housing, you can then select from the degree of rotation options listed along side your tailhousing bolt pattern. ***These degree of rotations are approximate.*** The rotation on your application may vary 1 to 2 degrees.

We also get quite a few requests for installing the Atlas at a zero degree (or flat) rotation. We offer this option in both a right and left hand case application. This option requires us to machine the case with a different bolt pattern for the Atlas input ring. This case option should only be used if your goal is a flat rotation.

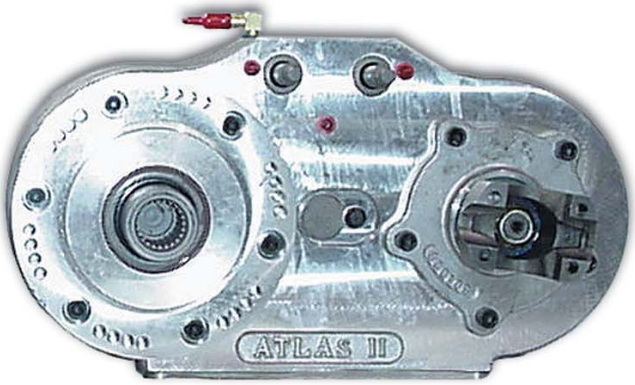
P/N 301100LF - Left drop Atlas 2sp flat rotation **P/N 301101RF** - Right drop Atlas 2sp flat rotation

The Atlas 4 speed "new design" offers the flat or near flat rotation option on the standard case. See the charts that follow for the 4 speed rotation options with the different tailhousings.

If a *flat rotation* case is ***not*** requested, the Atlas is assembled with the standard case configuration. The rotation options are as follows:



Right Hand Drop Configuration



Left Hand Drop Configuration

OPTION #1

This stock transmission bolt pattern is found on transmissions that were originally bolted to a Dana 300 transfer case with a stock case rotation of 35 degrees.

This stock transmission bolt pattern is also found on some Jeep transmissions when bolted to a New Process transfer case that had a stock rotation of 23 degrees.

Atlas 2sp Left Drop

STD.	or	Flat Case Rotation
17	0	degrees
24	7	degrees
31	14	degrees
38	20	degrees

Atlas 2sp Right Drop

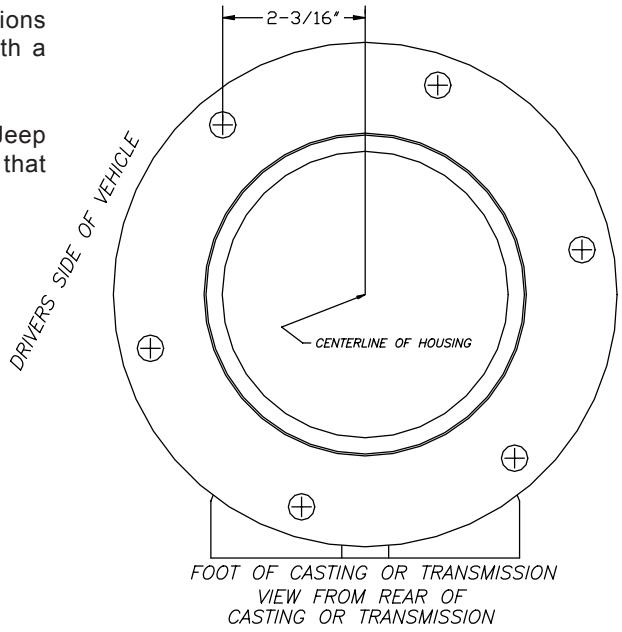
STD.	or	Flat Case Rotation
4	0	degrees
11	7	degrees
18		degrees
25		degrees

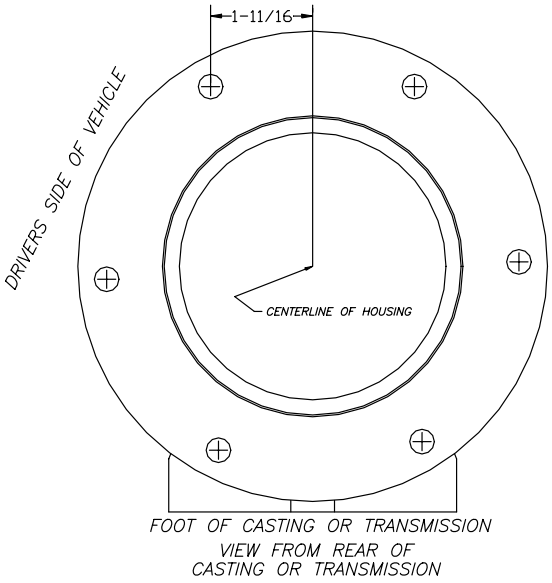
Atlas 4sp Left Drop

Possible Rotations	
0	degrees
18	degrees
25	degrees
31	degrees
38	degrees

Atlas 4sp Right Drop

Possible Rotations	
5	degrees
12	degrees
19	degrees
25	degrees





OPTION #2

This stock transmission bolt pattern is found on some Jeep transmissions when bolted to a New Process transfer case that had a stock rotation of 13 degrees.

Atlas 2sp Left Drop

STD. or	Flat	Case Rotation
7	3	degrees
14	10	degrees
21		degrees
28		degrees

Atlas 2sp Right Drop

STD. or	Flat	Case Rotation
14	3	degrees
21	10	degrees
28	17	degrees
35		degrees

Atlas 4sp Left Drop

Possible	Rotations
7	degrees
14	degrees
21	degrees
28	degrees

Atlas 4sp Right Drop

Possible	Rotations
5	degrees
15	degrees
22	degrees
29	degrees
35	degrees

OPTION #3

This bolt pattern is found on *most* of our adapter housings. If you are currently using one of our castings equipped with the dual bolt pattern, you will have the following rotation options:

Atlas 2sp Left Drop

STD. or	Flat	Case Rotation
7	0	degrees
14	3	degrees
17	7	degrees
21	10	degrees
24	14	degrees
28	20	degrees
31		degrees
38		degrees

Atlas 2sp Right Drop

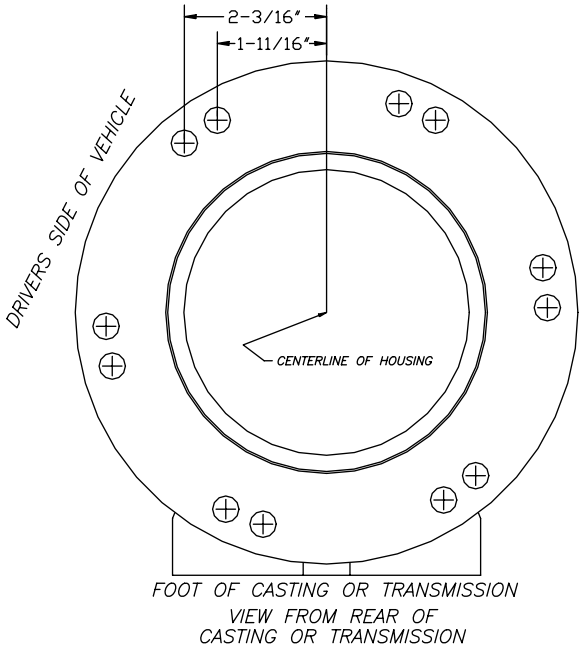
STD. or	Flat	Case Rotation
4	0	degrees
11	3	degrees
14	7	degrees
18	10	degrees
21	17	degrees
25		degrees
28		degrees
35		degrees

Atlas 4sp Left Drop

Possible	Rotations
0	degrees
7	degrees
14	degrees
18	degrees
21	degrees
25	degrees
28	degrees
31	degrees
38	degrees

Atlas 4sp Right Drop

Possible	Rotations
5	degrees
12	degrees
15	degrees
19	degrees
22	degrees
25	degrees
29	degrees
35	degrees



Special Adapter Rotations

Shorty 4L60E Adapter (Atlas 2 speeds)

Left STD Case 10, 20 & 30 degrees
Left Flat Case 2 & 12 degrees
Right STD Case 12 degrees
Right Flat Case 4 degrees

TAILHOUSING OPTIONS

REAR TAILHOUSING OPTION:

Standard Atlas Tailhousing

The standard Atlas transfer case comes with a rear tailhousing that accepts a stock Jeep speedometer from Jeep vehicles 1982 & newer. Atlas units ordered for earlier Jeeps or other vehicles can order a mechanical drive speedometer housing. This housing is the same as an early style Jeep. To connect to this housing, a special cable fitting may be necessary. The speedometer provision on the Atlas also allows you to calibrate your speedometer for tire and gearing changes. The chart on **Page 28** lists these options. The Atlas 2 speed tailhousing is **P/N ALT32**. If a speedometer is not needed, the speedometer access hole can be plugged by using **P/N 300621**.

Atlas Short Tailhousing (No Speedometer)

Since rock crawling events have become steadily & increasingly popular, so have the requests for additional Atlas upgrades. The rock crawling industry has ventured into shorter drivetrains and light weight rear engines combinations. With these newer combinations, we were prompted to build a shorter Atlas tailhousing. This tailhousing is 2" shorter than the standard Atlas tailhousing. It is designed for trail or competition use *only* since it does not provide provisions for any type of speedometer. This new tailhousing can be retrofitted to any Atlas case by ordering **P/N 301499R**. If you're ordering a new case, this item can be included on a new Atlas 2 speed by using **P/N AST32**. Not recommended for street use.

HD Atlas Tailhousings with 300M Output Shaft

The HD Atlas rear tailhousing is basically the same as the standard and short housing with the exception on the output shaft. The output shafts in these tailhousings are manufactured out of 300M steel. This was introduced into our product line for a special aftermarket military vehicle. This high grade steel shaft is 130% stronger than our standard output. This kit is not necessary for most applications; however, for extreme horsepower and torque this Atlas HD tailhousing may be for you. The HD tailhousing is available for the all new design 4 speeds and available for all the Atlas 2 speed at an additional cost, **P/N ALT32HD** or **P/N AST32HD**.

GM VSS Tailhousing (No Speedometer)

Vehicle speed sensors (VSS) are mandatory for computer controlled engines and transmissions. The VSS sends information to the vehicle computer system for both engine and automatic transmission operations. Early Chevys up to 1992 used a computer that required a D.C. square wave input into the computer. These early computer system requirements could be fed by either a special speedometer drive or a reluctor ring. Chevys 1993 & newer required a A.C. sine wave. This sine wave creates a voltage that increases with vehicle speed. The only way that this voltage can be generated is through a reluctor ring mounted to either the transmission or transfer case shafts. This information was obtained from various sources, so please verify your requirements before doing any vehicle modifications.

Our tailhousing allows a sensor and reluctor to be installed in place of the speedometer drive. Our Atlas tailhousing had to have some slight pattern changes to incorporate this new feature. To add this option to an existing transfer case would require the purchase of a new tailhousing. This new option was primarily developed so that the Atlas could be installed into a newer Chevy 4WD vehicle. When ordering this tailhousing with an Atlas, we also include a standard shift control unit that is drilled and tapped to accept a low range switch. This allows the Chevy computer to re-calibrate the output shaft signal when in low range. ***Note:*** The Chevy computer may require some wiring and computer program changes for the different low ratios.

On Vehicles with computer controlled engine swaps, this tailhousing kit can provide the proper VSS signal when using a manual transmission. Vehicles with a computer controlled engine swap and an automatic transmission requiring a VSS *should not* use this tailhousing option *unless* a low range switch is installed and the computer program is modified. When installing this type of engine and automatic transmission combination, we highly recommend a reluctor ring location in the adapter or the transmission. This will give the engine computer system a correct 1-to-1 reading in or out of low range.

The VSS tailhousing kit we offer is **P/N AVT32L** .

If you have installed a newer GM engine into a Jeep with a manual transmission, you may want to retain the Jeep speedometer, but the GM engine needs the 40 pulse reluctor to function correctly. The standard Atlas transfer case tailhousing should be retained and one of our TruPulse kits should be used. These TruPulse reluctor kits fit on all of our Atlas tailhousings. These kits are an externally mounted unit that provides the True 40 Pulse required for the computer system. The reluctor ring gets mounted to the transfer case yoke. The kit is offered in several yoke styles. ***Note:*** These kits will not work with a flange yoke.

TruPulse Kits:

P/N 50-5040 with a 1310 non C.V.
P/N 50-5041 with a 1310 C.V.
P/N 50-5042 with a 1350 non C.V.
P/N 50-5043 with a 1410 non C.V.

FRONT OUTPUT OPTIONS

The Atlas 2 speed was originally designed with a 26 spline front output shaft. As the Atlas gained popularity and a rock solid reputation for strength, the owners of rigs with high horse-powered engines, long wheelbase, larger tires, and vehicles with higher G.V.W. ratings began requesting this transfer case for offroad performance and reliability. A longer wheelbase or higher G.V.W. vehicle classification simply means less weight transfer toward the rear of the vehicle under operating load; therefore, more strength demand is put upon the front output shaft. The large tires and higher horse-powered engines also put more stress on the front output shaft when in 4WD. A larger 32 spline front output shaft, capable of handling higher load ratings, is the solution.

The 32 spline upgrade can be identified by a 4 bolt front output seal retainer

We now require you to specify the spline count of your Atlas transfer case, either a 26 spline or 32 spline front output shaft. The 26 spline was designed for vehicles with stock engines, a G.V.W. of 5,000 lbs., and up to a 35" tire size. The 32 spline front output should be used if your vehicle requirements exceed this rule of thumb listed above. The larger 32 spline shaft will accept larger and stronger front yoke assemblies commonly found in larger class vehicles (half-ton to one ton trucks). The choice between the two splines can also be affected by your driving habits. The 26 spline shaft in a stock vehicle can break if the vehicle is abused or power is applied while the tires are bound up while offroading. The 26 spline shaft kit is an option in the Atlas 2 speeds only with gear ratios 2.0, 3.0, 3.8, & 4.3. The Atlas 5.0 and Atlas 4 speeds come standard with 32 spline front output.

26 Spline Front Output Shaft Kit: AF26
32 Spline Front Output Shaft Kit: AF32

We also offer a kit to retrofit an Atlas from a 26 spline to a 32 spline front output. This upgrade kit can also be installed into any previously built Atlas. Instructions are provided online for mechanically inclined individuals to perform this upgrade.

32 Spline Upgrade Kits for used Atlas Units: ARF32
32 spline front output. (Yoke is sold separately)

YOKE OPTIONS AND INTERCHANGEABLE YOKES

With the Atlas transfer case being such a diverse case fitting into such a wide variety of vehicles, naturally we needed a variety of available transfer case yokes. The yokes we offer are for the 26 spline front output shaft and the 32 spline front and rear outputs shafts. The yokes that follow are listed in 3 different ways: 1st column is when ordering a new Atlas; 2nd column is when you're ordering a replacement yoke for an Atlas which would include a new seal, seal washer, and nut; and the 3rd column is just the yoke by itself. The last two columns include our seal number plus the Chicago Rawhide & National seal numbers.

ATLAS YOKE OPTIONS:

Yoke Series & Spline	Yoke P/N's for A New Atlas:	Individual Yokes:	AA Seal P/N's	O.E. Seal P/N's
Front Yokes 26 Spline:				
1310 series (C.V.)	P/N A1310CV26	P/N 300481	P/N 300501	CR 15635 or
1310 series (non-C.V.)	P/N A1310-26	P/N 300477	P/N 300501	NAT. 450185
32 Spline Yokes:				
1310 series (C.V.)	P/N A1310CV	P/N 300475	P/N 300502	CR 18817 or
1330 series (C.V.)	P/N A1330CV	P/N 300369	P/N 300502	NAT.473239
1310 series (non-C.V.)	P/N A1310	P/N 716295	P/N 300473	CR 21164 or
1350 series (non-C.V.)	P/N A1350	P/N 300472	P/N 300473	NAT.472015
1350 series (C.V.) *	P/N A1350CV	P/N 300485	P/N 300473	CR 21164 or
1410 series (non-C.V.)Straps	P/N A1410	P/N 300483	P/N 300473	NAT.472015
1410 series (non-C.V.)U-bolt	P/N A1410U	P/N 300488	P/N 300473	
Flange Yokes 32 Spline				
1310/1330/1350 series (CV & non-C.V.) *	P/N AF1300	P/N 300470	P/N 300473	CR 21164 or
1410 series (non-C.V.) *	P/N AF1410	P/N 300471	P/N 300473	NAT.472015

1410 Flange yoke is drilled and tapped for (4) 12mm x 1.25 bolts on a 3.75"diameter and has a 2.75" female index for the mating yoke. The 1300 series flange yoke is shown on the next page.

*** Yokes with the asterisk are an additional cost on new Atlas orders.**

Companion yokes for the flange yokes listed above -

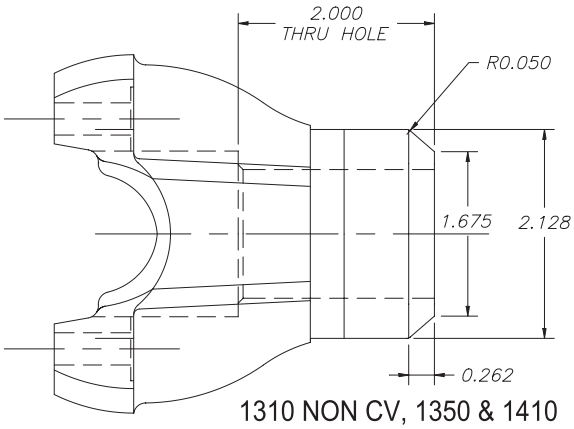
1310, 1330 & 1350 C.V. and non-C.V. flange yoke. Spicer companion yoke numbers are as follows: (1310 C.V., P/N 211229x), (1310 non-C.V., P/N 2-2-939), (1330 C.V. - P/N 211631x), (1330 non-C.V., P/N 2-2-1369), (1350 C.V., P/N 212024x), (1350 non-C.V., P/N 3-2-1579).

1410 non C.V. flange yoke. Spicer companion yoke number is 3-2-439 (1410 non-C.V.)

Flange yoke may require the companion flange bolts to be installed through the yoke before the yoke is installed onto the transfer case. This depends on the series of companion yokes used. If the flange yoke is currently installed on your transfer case, you may be required to first loosen the yoke retaining nut, pull the yoke away from the transfer case enough to install the companion flange bolts. Once the bolts are in place, a new lock nut should always be installed and torqued to 150 ft.-lbs. to secure the yoke to the transfer case.

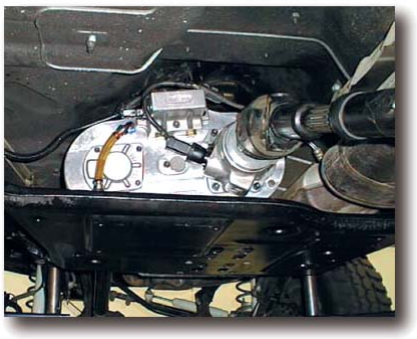
If any yoke nut is ever removed from the shaft for any reason, it should always be replaced with a new one. When installing a new yoke, the rubber seal washer should be used along with a small amount of silicon to prevent oil leakage down the shaft splines.

Yoke Modifications: Changing the style of yokes on the Atlas transfer case may require your new yoke to be modified. When installed on an Atlas, the yoke will load up against a tapered roller bearing. Some yokes require a chamfer to be machined to clearance the cage of this bearing. The yoke drawing shows the required machining on these yokes.



1310 NON CV, 1350 & 1410

NOTE: If you replace the front ***26 spline*** yoke with any of the yokes listed, the nut that retains the yoke has a torque specification of ***130-135 ft.-lbs***. When replacing the front or rear ***32 spline*** yoke with any of the yokes listed above, the nut that retains the yoke has a torque specifications of ***150-155 ft.-lbs***.



OPTIONAL YOKES THAT WE DO NOT STOCK -

Front Yokes for 26 Spline shaft:

1330 series (non-C.V.) Spicer P/N 2-4-3571 & C/R # 15635
1350 series (non-C.V.) Spicer P/N 3-4-5751 & C/R # 15635
(There are no C.V. yokes available on these series)

Front & Rear Yokes for 32 Spline shafts:

1330 series (non-C.V.) Spicer P/N 2-4-5521 & C/R # 21164

U-JOINTS

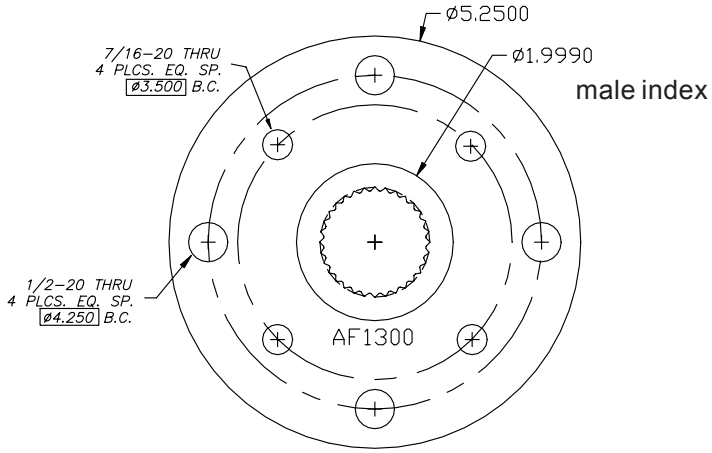
Spicer series#	"D"- Dia of cap (in)	"E"-width across caps (in)	Part# (non-C.V.)	Std Spicer U-bolt Part
1310	1.062"	3.219"	5-153X	2-98-94X
1330	1.062"	3.625"	5-213X	3-94-58X
1350	1.188"	3.625"	5-178X	3-94-18X
1410	1.188"	4.188"	5-160X	3-94-18X
1480	1.375"	4.188"	5-188X	3-94-28X

PARKING BRAKE OPTION

We offer a parking brake kit that bolts to the rear tailhousing of the Atlas transfer case. This unit is just the brake assembly only and not the handle or cable. The kit comes with a new flange yoke for either the 1310 series yoke or the 1350 series yoke.

This kit provides the tail housing bracket for the caliper mounting. It also includes the caliper, flange yoke, and support bar. This parking brake is not intended to be used as an emergency brake and is not D.O.T. approved. *It is intended for offroad use only.*

P/N PM1500 - 1310 series flange
P/N PM1501 - 1350 series flange



SPEEDOMETER OPTIONS

The Atlas long tailhousing is the only housing that offers a speedometer option (sold separately). The Atlas long tailhousing is designed to fit a stock Jeep (1982 & up) mechanical driven speedometer housing. These housings generate a pulse that operates the speedometer. Vehicles requiring a cable connection for the speedometer can order **P/N 301506** as part of the Atlas order. This speedometer housing is from a 1983 to 1986 Jeep CJ. The speedometer gear is not included with this housing, but by using the charts that follow you can select the correct gear for your tire size and axle ratio. Some of these gears are hard to come by, so we may not offer the gear for your application.

If your stock cable does not fit this speedometer housing or if you require additional speedometer connections, then we recommend that you contact Nevada Speedometer at (775)358-7422.

P/N 301506 Speedometer housing
P/N 300630 Replacement seal and O-ring

If a long tailhousing is needed but you do not want a speedometer, we also offer a plug for the tailhousing. If your application does not require any speedometer connections, order **P/N 300621** speedometer hole plug.

The late model Jeep TJs with the Rock Trac 241J transfer case used a tone ring and sensor for the speedometer pickup source. This combination is not able to be used on the Atlas tailhousing. The Atlas only accepts the mechanically driven TJ Speedometer. This NP231 style speedometer will work the same as the later model tone ring and sensor. One advantage is the mechanical unit is easy to modify when larger tires or different ring and pinions are used. The charts that follow offer different drive gear part numbers to calibrate your speedometer. This speedometer assembly is offered under **P/N 300640**. The speedometer gear is not included with this housing assembly.

TIRE DIAMETER	(Fig. E) AXLE GEAR RATIOS							
	5.38	5.13	4.88	4.56	4.10	3.73	3.55	3.07
44”	33T	32T	30T	28T				
42”	35T	33T	31T	29T				
40”	36T	35T	33T	31T	287T			
39”	37T	36T	34T	32T	28T	26T		
38”	38T	36T	35T	32T	29T	27T		
37"	39T	37T	36T	33T	30T	27T	26T	
36”	40T	39T	37T	34T	31T	28T	27T	
35"	42T	40T	38T	35T	32T	29T	28T	
33"		43T	40T	37T	34T	31T	29T	
32"			41T	39T	35T	32T	30T	26T
31"			43T	40T	36T	33T	31T	27T
30"				41T	37T	34T	32T	28T
29"				43T	38T	35T	33T	29T
28"					40T	36T	34T	30T

(Fig. F)

CHRYSLER SPEEDOMETER DRIVE PART NUMBERS

SHORT GEARS			LONG GEARS			
Part Number	TEETH	COLOR	Part Number	TEETH	COLOR	OLD JEEP P/N
52067628	28T		52068148	26T	RED	
52067629	29T		52068149	27T	WHITE	
52067630	30T		52068150	28T		
52067631	31T		52068151	29T	BLACK	J3212729
52067632	32T	BLACK	52068152	30T	YELLOW	J3212730
52067633	33T	YELLOW	52068153	31T	GREEN	J3212731
52067634	34T	GREEN	Discontinued	32T	BLACK	J3212732
52067635	35T	ORANGE	52068155	33T	YELLOW	J3212733
52067636	36T	RED	52068156	34T	GREEN	J3212734
52067637	37T		52068157	35T	ORANGE	J3212735
52067638	38T	BLUE	52068158	36T	RED	J3212736
52067639	39T	GREEN	52068061	39T	GREEN	J3212221
52067640	40T	ORANGE	52068062	40T	ORANGE	J3230222
52067641	41T	RED	2538941	41T	RED	53001488
52067642	42T	WHITE	2538942	42T	WHITE	53001489
52067643	43T	BLUE				

The Chrysler part numbers listed above are becoming limited in supplies from the dealership. We now carry these speedometer gears. Some of these gears are standard Chrysler, some are used/recondition ones, and some are imports. The availability of all these gears is day to day. If we do not have your required gear in stock, we may not be able to provide an estimated delivery time. Our aftermarket suppliers are working towards making most of these gears as they become more scare from Chrysler.

Most of gears that we offer below are imported gears and may require a small modification. On some of these gears, the square hole on the shaft of the gear may be a snug fit to the speedometer cable. If this is true in your application, you may be required to sand or file on the square stock at the end of the speedometer cable to fit the gear. However, most of them fit fine and do not require this modification.

ADVANCE ADAPTERS SPEEDOMETER DRIVE PART NUMBERS

SHORT GEARS

300637-28
300637-29
300637-30
300637-31
300637-32
300637-33
300637-34
300637-35
300637-36
300637-37
300637-38
300637-39
300637-40
300637-41
300637-42
300637-43

LONG GEARS

300620-26
300620-27
300620-28
300620-29
300620-30
300620-31
300620-32
300620-33
300620-34
300620-35
300620-36
300620-39
300620-40
300620-41
300620-42

Toyota Speedometer Cable Adapter 1995-97:

This cable adapter allows the Atlas speedometer drive housing (P/N 301506) to couple to the stock Toyota speedometer cable. You can then retain the factory gauge and have all the added benefits of the Atlas transfer case. This cable adapter is sold under **P/N 300613** and has a Toyota side- 22mm w/ .203 female fitting, and on the other end couples to the Atlas speedo housing side- SAE 7/8"-18 .104 square.

Toyota Speed Sensor 1999-2004 , FJ Cruisers, T100:

This kit allows you to retain the factory Toyota Vehicle Speed Sensor when installing an Atlas Transfer Case. A speedometer cable is used with a sensor housing to remote mount the VSS that was originally installed in the Toyota transfer case. This kit is sold under **P/N 300605**. You will also need the speedometer housing **P/N 301506** for the Atlas and the proper drive gear.

Low Range & 4WD Switch :

A low range switch and pigtail is also available from us for the Atlas transfer case. This switch is from a stock Jeep TJ. The switch can be used for an indicator light or a low range switch. The sensor is **P/N 300378**. Pigtail part number is **P/N 300378-C**.

P/N 300378

TJ Rubicon, JK Jeeps:

Jeep TJs & JKs: In essence, the Low-Range switch tells the computer what mode the transfer case is in. To operate the needed functions on these vehicles, we only need one of four normal mode positions and that is the "Low-Range" mode. This mode allows the factory lockers (and electric sway bar if equipped) to work on the Rubicon series TJ, JKs & Power Wagons. The other necessity is the ESP (ELECTRONIC STABILITY PROGRAM) in the JK series of Jeeps. By installing the Low-Range switch in the JK it will automatically turn the ESP to its lowest setting possible allowing front digs in low range, tire slippage without engine hesitation or braking feedback. It will also change the fly-by-wire throttle sensitivity to take away the side affects that usually consist of jerky throttle response that occurs as a result of running low range without the Low-Range switch hooked up.

P/N 300378X - Low range pigtail for Jeep
(will not light up 4WD indicator in high range)
Note: This is a connector kit which requires you to solder and assemble the pigtail.

P/N 300377 - Control module for Jeep JKs
(retains all stock features when an Atlas is installed)

300377

2012 and Up Jeep JK Autos: JK 2012 and newer Jeeps equipped with an automatic transmission will also require a Body Control Module flash to operate correctly with the new Atlas transfer case. Jeep coded the stock transfer case ratio of either the 2.72:1 or the 4.0:1 into this module, and any different ratio in the transfer case will put the vehicle into a limp mode. The Body Control Module is located under the steering column access panel. The Module can be removed and shipped to Burnsville Offroad, 3513 Highway 13 W. Burnsville, MN, 55337, 952-890-3990. The program flash is approximately $100.00 and you will need to know the ratio you want to use on the Atlas. Unfortunately, the Atlas 4 speed is not an option in these newer JKs with the automatic.

The exact ratios for the Atlas are required for reprogramming the module. We round up or down to the decimal on our ratios; however, the Jeep computer module will accept the three places right of the decimal. The ratios are as follows: 2.0:1 is exactly 2.087:1, 3.0:1 is 3.030:1, 3.8:1 is 3.824:1, 4.3:1 is 4.286:1, and 5.0:1 is 5.048:1.

2 SPEED SHIFTER OPTIONS

We have designed several different shifters to fit various vehicle applications. If your specific vehicle application is not listed, a universal right or left hand shifter should be used. Areas of consideration on any installation are vehicle console and floorboard clearances. These shifters have been designed mainly around stock vehicles. Vehicles with body lifts greater than 1" may require more than the usual modifications for proper fit of the shift handles. All twin stick shifters, with the exception of the cable shifter, are included at no additional cost when an Atlas is purchased.

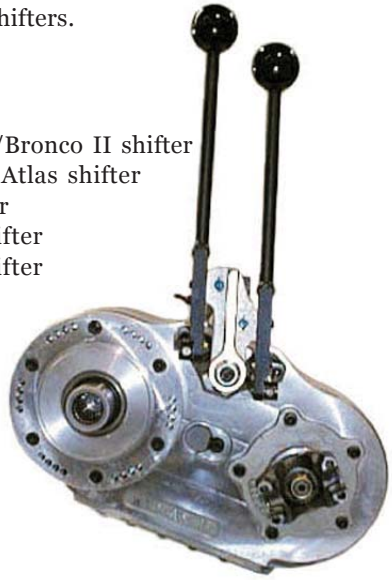
SHIFTER SOLD WITH AN ATLAS

P/N 303000L	5.5" Left Universal Atlas shifter	**P/N 303005L**	ZJ 6" Left Atlas shifter
P/N 303001R	5.5" Right Universal Atlas shifter	**P/N 303006L**	Explorer/Bronco II shifter
P/N 303002L	TJ Automatic Atlas shifter	**P/N 303007L**	XJ AW4 Atlas shifter
P/N 303002U	TJ Universal Atlas shifter	**P/N 303008L**	JK shifter *(additional cost)*
P/N 303003L	TJ AX15 Atlas shifter	**P/N 303009**	Cable shifter *(additional cost)*
P/N 303004L	Bronco Atlas shifter	**P/N 303020**	TJ Cable shifter *(additional cost)*

NOTES: 1. The Lokar auto transmission shifters may have some clearance issues with the Atlas cable shifters.
2. The Allison transmission coupled to the Atlas 2 speed cannot use cable shifters.

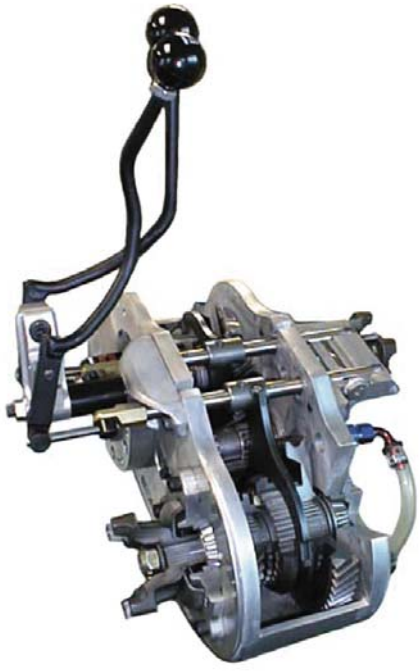
ATLAS SHIFTER SOLD SEPARATELY

P/N 303000LA	5.5" Left Universal Atlas shifter	**P/N 303006LA**	Explorer/Bronco II shifter
P/N 303001RA	5.5" Right Universal Atlas shifter	**P/N 303007LA**	XJ AW4 Atlas shifter
P/N 303002LA	TJ Automatic Atlas shifter	**P/N 303008LA**	JK shifter
P/N 303002UA	TJ Universal Atlas shifter	**P/N 303009A**	Cable shifter
P/N 303003LA	TJ AX15 Atlas shifter	**P/N 303020A**	Cable shifter
P/N 303004LA	Bronco Atlas shifter		
P/N 303005LA	ZJ 6" Left Atlas shifter		



DIVORCED ATLAS SHIFTER & SUPPORT

P/N 303025L Left drop Divorced case shifter and support mount
P/N 303026R Right drop Divorced case shifter and support mount



Atlas Shifter Linkage Upgrade: The connection rods for the Atlas were designed to be universal so they could be adjusted for the various drivetrain lengths. The stock linkage works well for the majority of applications and vehicles. The extreme racers and rock crawlers, on the other hand, were looking for a linkage that would withstand the abuse that they are putting their rigs through. The two kits offered are upgrades that work with the standard handles and use heim joints that are bolted to the Atlas linkage. Anyone can upgrade to these kits as they will work on all Atlas ridged mounted twin stick applications, **P/N 303040** or **P/N 303041**. View the application details & descriptions online.

ATLAS SHIFTER CONTROLS

The Atlas is used in a wide variety of applications. We are seeing more rear engine applications now than ever before. One problem with a rear engine application is that the rear tailhousing of the Atlas is now facing the front of the vehicle. When the Atlas is shifted in 2WD high, the power is distributed to the front axle which makes the vehicle hard to control at higher speeds. Our solution to this problem is to change the shifter control on the Atlas case. This allows the Atlas to be shifted into 2WD high, putting the power to the front output shaft of the Atlas which is connected to the rear axle. You still have all of the same shifter options as you do with any stock Atlas case.

P/N 301510 - Left drop shifter (fits right drop case)
P/N 301511 - Right drop shifter (fits left drop case)

Atlas Shifter Knobs Option:

The Atlas twin stick shifter kit comes with two standard black knobs. Make your Atlas installation look cool with these new billet aluminum or Black anodized aluminum knobs. The Black anodized versions are designated by an "AA" at the end of the part number.

Knob sets come in two finishes. **P/N 303150** and **P/N 303150AA** are 2-3/4" tall. The knobs are also available in a reversed shift pattern for certain cable shifter installations under and sold under **P/N 303152** or **P/N 303152AA**. All sets are priced at **$42.95**.

4 SPEED SHIFTER OPTIONS MAIN CASE

We have designed several different shifters to fit various vehicle applications. If your specific vehicle application is not listed, the universal shifter should be used. Areas of consideration on any installation are vehicle console and floorboard clearances. These shifters have been designed mainly around stock vehicles. Vehicles with body lifts greater than 1" may require more than the usual modifications for proper fit of the shift handles. All twin stick shifters, with the exception of the cable shifter, are included at no additional cost when an Atlas is purchased.

The 4 speed shifters are basically the same as the standard Atlas shifters except for the extension tube and shift rail connecting links which are longer to compensate for the added length of the transfer case.

SHIFTER SOLD WITH AN ATLAS 4 SPEED

P/N 344000 Universal Atlas 4 speed Right or Left shifter
P/N 344002 TJ Automatic Atlas 4 speed shifter
P/N 344003 TJ Manual Atlas 4 speed shifter
P/N 344004 Bronco Atlas 4 speed shifter
P/N 344005 ZJ Atlas 4 speed shifter
P/N 344006 Explorer and Bronco II Atlas 4 speed shifter
P/N 344007 XJ Atlas 4 speed shifter
P/N 344008 JK Atlas 4 speed shifter *(additional cost)*
P/N 303009-4 Cable Shifter *(additional cost)*
P/N 303020-4 TJ Cable Shifter *(additional cost)*

4 SPEED REDUCTION HOUSING SHIFTER:

The planetary reduction portion of this box is a non-synchronized unit. ***YOU MUST COME TO A COMPLETE STOP BEFORE SHIFTING THE PLANETARY.***

For the manual transmission, the shifting procedure should be to stop the vehicle then shift the planetary. If the shift is unsuccessful, then feather the clutch as you pull on the shift lever. The unit should slide easily into gear.

For an automatic transmission, the shifting procedure should be to stop the vehicle. Shift the transmission to neutral and then quickly shift the planetary. If you pause, the transmission output shaft will accelerate while the planetary is between gears. If the shift is not immediately successful, then shut off the engine while the transmission is still in neutral. Once the engine is shut off, complete the shift of the planetary unit. Restart your engine while the transmission is still in neutral.

Cable Shifter:

This shifter provides a linkage system that can be mounted to the floorboard of the vehicle. This single handle shifter has a front-to-rear movement and only requires a small clearance hole in the floorboard. It requires you to route the cable so that it does not interfere with the driveshafts or other moving components. We also recommend that you keep the cable away from the exhaust as much as possible. The location of the shifter on the floorboard can vary. On Jeeps with a full console like the TJs, we have found that this shifter fits nicely besides the emergency brake towards the driver's seat. We've also had customers install the shifter between the driver's door and their seat. The floorboard requires three holes drilled through and a small oval slot for the handle.

P/N 344020 - Cable Shifter Atlas 4 speed

Jeep TJ without a console

Jeep TJ 4 speed shifter located between the E-brake and the console (left) and the 4 speed cable routed on a Jeep TJ (right)

COMMON INSTALLATION MISTAKES

This section highlights a few of the areas that we commonly see mistakes made during the installation of an Atlas 2 and 4 speed. These mistakes will cost you time and money. Most problems occur because the installation is rushed or procedures overlooked. Other errors happen because the instructions were not read or followed.

The most common mistake is having a transmission output shaft that is too long or does not have long enough splines. A shaft that has either one of these problems can bottom out or not engage enough into the Atlas input. Most times, this interference is not noticed until the transfer case is being installed. Most installers get the transfer case near to the mating flange, but find they are lacking roughly 1/16 of an inch between the two gear boxes coming together. They push, pull & rotate to mate the two boxes, then decide to put the nuts on the stud of the transfer case to pull the units together. The transfer case, whether being a 2 speed or 4 speed, is now damaged: the 2 speed having a broken front housing snap ring, and the cage needle bearing of the 4 speed having been pre-loaded. **Running the units in this state will cause complete destruction of the unit.** In short, both units will need disassembly to fix the problem.

The easiest fix is prevention. If the gear boxes do not slide together completely when installing, remove the transfer case and measure the shaft lengths. Refer back to this application guide to the input section for spline engagement lengths. The Atlas is a precision built transfer case. *DO NOT FORCE TOGETHER* even if it's a small gap between the transmission and transfer case.

The second, most common mistake or problem is the cable shifter adjustments and installation. We now offer several custom and universal cable shifters to fit the Atlas 2 and 4 speed transfer cases. The instructions highly recommend installing the shifters to the Atlas while the transfer case is outside the vehicle. This will allow you the opportunity to fine tune the linkage while viewing the movement of both the handle and the shift rail. Adjustments to the linkage could be a half turn of a certain nut. If the Atlas & shifters are installed, that nut is hard to get a wrench on and you could spend a lot of time trying to get it adjusted correctly. Incorrect adjustments to the linkage will make the Atlas hard to shift, and we have seen some cables actually break because of driver trying to force a mis-adjusted shifter.

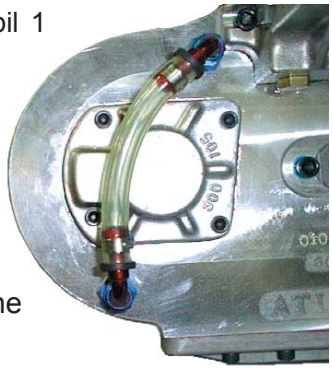
The last area of concern is more of a precaution, not an installation mistake. After an Atlas was installed, we have seen a couple of transfer cases that have experienced rear output shaft bearing failure. The Timkin bearings require custom shimming for each Atlas built. The tolerance is .001" which is the recommendation from Timkin. The units we've seen failure on have been new installations (having less than 10 to 20 miles on the unit) and in a vehicle that was flat-towed. **We now recommend that a new unit must have the break-in fluid replaced, which is after the first 500 driving miles.** This allows the bearing to seat properly to the bearing race. It also allows the oil to circulate through the unit to lubricate areas that were assembled with assembly lube. **If you plan on flat-towing, we actually prefer that you remove the driveshafts from the vehicle. This eliminates any possible chance of bearing failure on your Atlas 2 speed due to lack of oil circulation. PLEASE NOTE that under absolutely *no* circumstance should an Atlas 4 speed be flat-towed without removing the driveshafts. Damage to the planetary assembly and the additional needle bearings will occur.**

INSTALLATION PROCEDURES FOR ALL VEHICLES

Before the actual installation begins, you should read the installation and operating procedures of your new transfer case. Please verify that ALL features such as input spline and case configuration (left or right hand drop) are correct. Also inspect the unit for any damage that may have occurred during shipping. This section of the manual deals with the general installation procedures of the Atlas. Specific installation instructions for many vehicles are also on our website at www.Advanceadapters.com or provided for you with your unit. ***Please read all instructions before installing.***

LUBRICATION

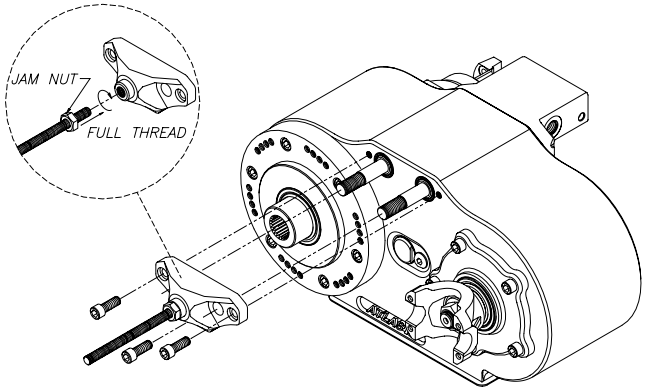
This unit is shipped DRY. Before operating your Atlas, please fill with the recommended gear lubricant (Amsoil MTG GL-4, Torco MTF GL-4, or any other A.P.I. GL-4 rated synthetic gear oil). If you are unable to find these lubricants, one of the following synthetic oils can be substituted as a **temporary fix** until the proper fluid can be obtained: Castrol Syntec 5w-50 or Mobil 1 Synthetic 15w-50.

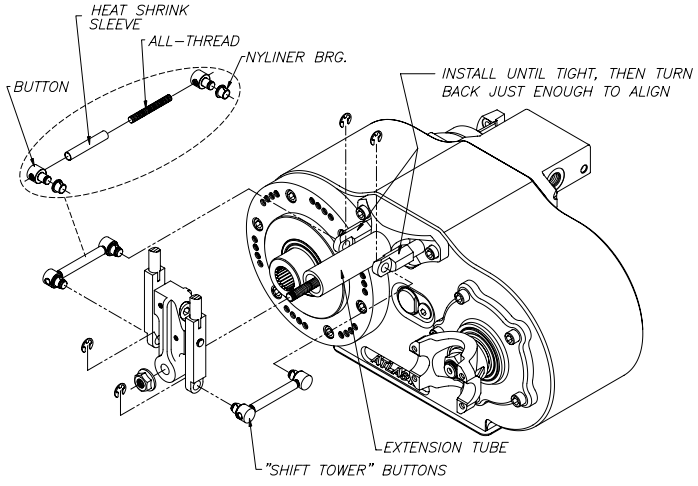


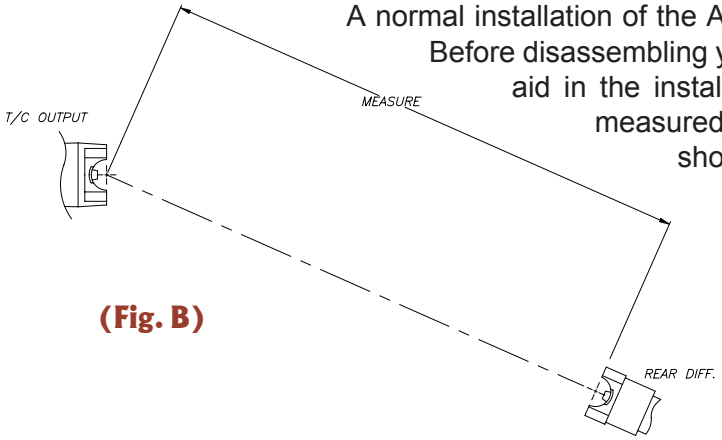
The recommended oil capacity is 2 quarts in the Atlas 2 speed and 2-1/2 quarts for the Atlas 4 speed transfer case. The Atlas does not offer any type of 'weep hole' to verify the oil level. Therefore, we have supplied your unit with a site tube to aid in determining the correct fluid level. Once the required two quarts are put into the Atlas, we recommend marking the oil level on the site tube. We like to use a small zip tie as a oil level marking device. ***Note:*** When the Atlas is overfilled beyond the recommended levels, it will cause the unit to vent the extra oil out the breather.

PREPARATION

Now is a good time to familiarize yourself with the shifter components. Pre-assembly of the shifter items will help a great deal with the final installation. Unpack the shifter and install the shifter base. Use RTV Blue silicone to seal the bolt threads. Pre-assemble the rest of the components. Detailed shifter assembly instructions can be found in The Final Installation section. Once the shifter has been properly setup, remove it from the transfer case (leaving the triangular 3 bolt base on the unit). The Atlas must be installed into the vehicle without the shifters attached. On Atlas 4 speed units, the cable shifter on the reduction housing must be installed before installing the Atlas into your vehicle.







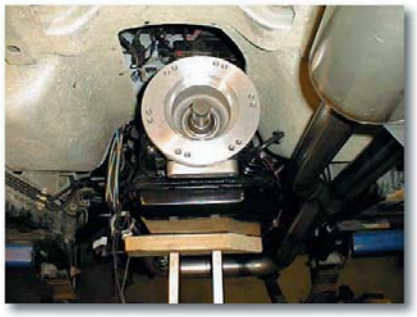
(Fig. B)

A normal installation of the Atlas transfer case should take around 6 to 8 hours. Before disassembling your vehicle, the undercarriage should be cleaned to aid in the installation process. Stock driveline lengths should be measured with your vehicle on the ground. The measurement should be taken as illustrated on **Fig. B**. Retain these measurements for later use.

The Atlas offers up to 4 different rotations depending on the application. We offer the same rotation as stock on all units. The other rotations are provided for either additional ground clearance or unique applications. Vehicles using one of our adapters with the dual bolt patterns have 8 rotation options. Before removing your stock transfer case, an angle finder can be used to obtain the rotation of your stock transfer case.

Your vehicle can now be raised for the necessary removal of the driveshafts, skid pan, and the stock transfer case. ***Note: Please make sure your vehicle is supported securely!***

Recommended Equipment: A floor jack to support the tranny and engine when the crossmember is removed, and a transmission jack for raising and lowering the transfer cases. The Advance Adapters Uni-Raise (shown left, **P/N 15-1000**) is also a helpful tool when doing drivetrain work.



By unbolting and removing your stock transfer case, you should have your transfer case adapter and output shaft exposed. The adapter housing transfer case mating flange should be cleaned of any debris. Double check the output shaft splines of your transmission and verify the stickout length. Make sure the Atlas has the same spline and that the length of the transmission output isn't too long for the Atlas input. (Refer to the Atlas Input Shaft section for more information).

The Atlas should now be test-fitted into the vehicle. The Atlas should index onto the spline of your transmission and up to the adapter housing. While holding the Atlas securely in place, rotate the transfer case to the desired rotation for your vehicle. Locate a stock hole on the adapter housing. Using a marker, mark the outside of the Atlas index ring. This will help to identify the rotation pattern. Check for tunnel clearance, front driveshaft clearance, and shifter clearance with the Atlas in this new rotation. ***Note:*** On many of the YJ, TJ, and CJ vehicles, a minor modification to the tunnel area will allow you to mount the Atlas at a higher rotation with little or no crossmember modifications. (Refer to the specific vehicle application for more details at www.advanceadapters.com).

Once this is done, remove the Atlas from the vehicle. Locate the mark on the index ring of the Atlas transfer case. The bolt patterns on the transfer case index ring are relative. In other words, whatever hole you've selected will be the same all the way around the index ring. Using the stud bolts provided, install them in the chosen pattern rotation. These studs are stock New Process items and are a restrictive fit into the front of the Atlas. If you are using a spacer adapter that requires longer bolts or stud bolts, they should be installed using 242 Loctite. Install the studs so that they have full thread engagement in the transfer case adapter ring. ***DO NOT PRELOAD THE STUDS INTO THE ATLAS INPUT RING!***

TIP: Before the final bolt up, we have found it easier to equip the Atlas with all the necessary components. For example: Shift indicator switch, speedometer, site tube, and drain plug, etc. The Atlas is also shipped with numerous red plastic caps to keep contaminates out of the unit. At this point in time, remove all caps and properly install all components.

THE FINAL INSTALLATION

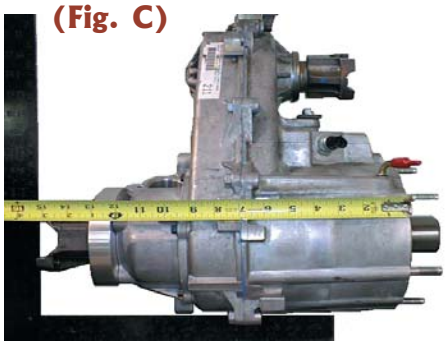
Apply a very thin film of RTV Blue silicone to your transfer case adapter mating surface. Aligning the studs with the adapter holes and the transmission output shaft with the Atlas input, the Atlas should slide completely onto the transmission mating surface. There should not be any GAP between the two units! If they do not meet, then you have an interference problem! Refer to the Atlas Input Shaft section for the recommended transmission shaft lengths. ***DO NOT PULL THE TWO UNITS TOGETHER WITH THE FASTENERS.*** This will cause internal damage to the unit. Possible problems may be too long of an output shaft or on some Jeep 21 & 23 spline transmissions, a spacer adapter may be necessary. If you are in doubt regarding your interference problem, please call!

The recommended nuts have been provided to secure the Atlas to your adapter. With the Atlas now secure, check again for proper clearances such as driveshaft, floorboard, skid pan, and exhaust, etc.

DRIVELINE MODIFICATIONS

You will normally need driveline modifications when installing the Atlas transfer case. What we have found that works well is either adding or subtracting (depending on the application) the measurements of the Atlas from the stock length of your transfer case.

REAR MEASUREMENT: To determine the new length for the rear driveline, simply measure from the face of the transfer case to the face of the rear output yoke **(Fig. C)**. Write that measurement down.



(Fig. C)

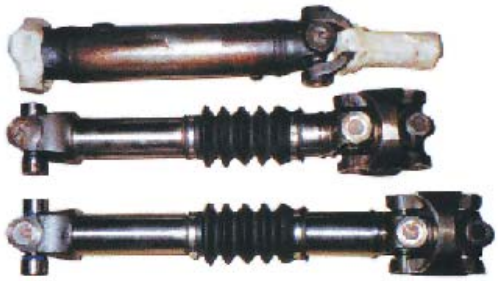
Take the same type of measurement of the Atlas. With that in mind, consider the following example.

Rear Measurement Example (Fig. C): This stock transfer case measured (on our example) 16.8". When subtracting that measurement from the Atlas measurement of 13.8", you have a difference of 3.0". Since the Atlas is 3.0" shorter than your stock transfer case, your rear driveshaft would then need to be lengthened 3.0". This difference is now added to the measurement taken from your stock driveline, as recommended in the Preparation section. You would now have your new rear driveshaft length.

FRONT MEASUREMENT: Measure the stock transfer case from the front yoke face to the surface of where the transfer case bolts to the adapter housing **(Fig. D)**. Write that measurement down.

(Fig. D)

The front yoke on the various stock transfer cases can either be a positive measurement (protrudes out from the adapter input face), or a negative measurement (recessed inward from the adapter input face). Most gear-driven transfer cases will have a positive yoke measurement, and most chain-driven transfer cases will have a negative yoke measurement. The Atlas measures approximately 2" positive offset from the face of the front yoke to the transmission adapter input.



Stock driveshaft (top) vs. new fixed yoke driveshafts

Front Measurement Example (Fig. D): This stock transfer case (our example) measured a negative 1-1/4". Adding that to the Atlas measurement of positive 2", the difference is 3-1/4". Since the Atlas front yoke on this application is 3-1/4" closer to your front axle, you would then need to shorten your front driveshaft this distance. This difference can now be subtracted from the measurement taken from your stock driveline, as recommended in the Preparation section. You would now have your front driveshaft length.

BREATHER INSTALLATION:

The stock transfer case breather hose should be replaced with a 3/8" fuel hose and connected to the brass elbow located on top of the Atlas. A new breather should be installed on the opposite end of this hose and mounted to the firewall. A free flowing atmospheric breather typically found in earlier model vehicles or used on differentials is best. On later model Jeeps, the stock breather is very restrictive. This stock breather is for lighter viscosity oils such as the ATF used in the stock transfer case. If this breather is not replaced, oil will blow out into the engine compartment. We offer new breather kits listed on **Page 4**.

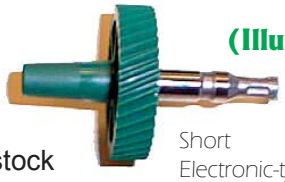
SPEEDOMETER INSTALLATION:

We can supply a cable-type speedometer drive unit for all applications other than Jeeps 1982 to current. The 1982 and newer Jeeps will use the original speedometer drive that came stock. You will simply have to remove it from your New Process transfer case and install it into your new Atlas. It is recommended that you replace the o-ring and seal that we have included with the Atlas package. On older Broncos, Bronco IIs, Explorers and Rangers, a speedometer cable fitting adapter must used to connect the Atlas speedometer drive to your speedometer cable. *Nevada Speedometer* (Ph# 775-358-7422) should have the necessary parts to assist you in this manner. The newest Jeep that used a New Process 241 transfer case picked up the speed from the axles, and the speedometer hole in the Atlas can be plugged.

On engine converted vehicles, caution should be used. If your engine has been converted to a newer Chevy, Ford or Chrysler and is computer controlled, it may also require a vehicle speed sensor. The speed sensor is usually connected at the speedometer. Each manufacturer has designed their own unique way of obtaining this computer input. If your vehicle has any computer requirements, you will need to take this into consideration. If you are wanting to install the Atlas into a Chevy, Ford or Chrysler vehicle, the computer requirements mentioned will also apply. Once you've taken into consideration your specific requirements, the speedometer cable can now be connected. ***Note:*** Listed in the Tailhousing Options section on **Pages 24-25** are a few of the VSS output components we offer.

Speedometer Calibration: There are two factors that affect your speedometer reading; actual tire diameter and axle gear ratio. The actual tire diameter is usually different than what is printed on the side wall of your tire. For example: A 33 x 11.5 x 15 tire (depending on the brand), may actually measure 32.5" in diameter. Tire sizes vary greatly among the manufacturers. Even the same tire from the same manufacturer can vary as much as 7% in diameter.

The speedometer charts on **Pages 28-29** will assist you in obtaining the right speedometer drive gear. As you can see their are two types of speedometer gears, both long and short. We measured them by the overall length of the speedometer gear. Long being 4.3" and short being 2.2". The speedometer housings that accept these gears are not interchangeable. For example: If your stock vehicle had a 2.2" gear, you cannot put a 4.3" gear onto that speed-o-drive housing.



(Illust. A)

Short
Electronic-type

Long Cable-type

If you are installing an Atlas in a 1987 or newer Jeep and have not changed your tire size or your axles, your stock speedometer drive gear would remain the same. However, if a new axle ratio and/or tire size is considered, see **Fig. E** on **Page 28**. We offer many stock gear options for your speedometer housing, some being in limited supply. Listed on the bottom of **Page 29** are the gears we offer. If your axle ratio and tire size requires a different combination, see **Fig. E** & **Fig. F**. Please contact your local Jeep dealership or refer to the gears that we offer.

When installing a speedometer gear with either 39, 40, 41 or 42 teeth, the gear and the housing must be installed separately. These are all large diameter speedometer gears. By first installing the gear into the tailhousing you will be able to tilt the gear shaft up allowing you to position the gear past the Atlas output shaft. Once this gear is in place, the speedometer housing must be aligned with the speedometer gear shaft and indexed into the tailhousing. When installing the speedometer housing, lube the o-ring that contacts the Atlas tailhousing with a bit of oil. This will prevent the o-ring from being nicked upon installation or rotation, causing this housing to leak.

Speedometer Problems: No matter what speedometer gear you use, you must make sure that the teeth of the speedometer gear have proper contact with the Atlas output shaft. The speedometer housing can be rotated to achieve proper contact. *Note:* There are three rotation possibilities. Many of the Jeep speedometer housings offer index numbers that reference to the gear tooth count. By lining up the retainer clip with the proper index number, the speedometer gear will work properly. If your housing does not have these index numbers, proper engagement can be obtained by rotating the speedometer housing until the speedometer gear meshes with the output shaft. The slots on the housing will then line up with the retainer clip. If this is not done, the speedometer will not engage properly.

TJ Speedometer Installation: The Jeep TJ speedometer is a tight clearance fit to the Atlas shift control. One option for clearance is to plug in the connector while the speedometer is rotated away from the shift control, and then rotate the assembly back into position for the speedometer gear engagement. The other option is to keep the white portion of the speedometer rotated 180 degrees from where it would normally be and use a washer under the bolt head to retain this part of the speedometer in place.

SHIFT INDICATOR:

The transfer case shift indicator (if applicable) should be connected. Make sure wires and/or hoses have proper body clearance and are not bound in any way. For more information, see the specific vehicles applications.

DRIVESHAFTS & CROSSMEMBER / SKID PAN:

You should now install your modified driveshafts. Trial fit your crossmember or skid pan, noting any modifications that may be necessary. The Atlas is equipped with a drain plug located on the inspection cover. You may wish to cut an access hole in your crossmember/skid plate for easy access. Once the modifications are made, install the crossmember/skid plate securely to the frame and the rubber support to the crossmember/skid plate.

LUBRICATION:

Before lowering your vehicle, fill your Atlas with the oil provided (Amsoil MTG GL-4, Torco MTF GL-4). By using a hand pump, connect the hose end to the upper fitting of the site tube to fill the Atlas to the recommended oil level. Once this is completed, re-secure the upper site tube fitting to the Atlas. If you are unable to find these lubricants locally, we offer it under **P/N 303200** or one of the following synthetic oils can be *temporarily* substituted until the correct oil is found: Castrol Syntec 5w-50 or Mobil 1 Synthetic 15w-50.

VISUAL INSPECTION:

Once the vehicle is back on the ground, the transfer case area should be inspected to verify that all fasteners and components relating to the transfer case are properly attached.

A visual inspection should be made with regard to driveline angles and clearance. New and unwanted noises are most often related to poor driveshaft angles! **C.V.** driveshaft combinations must be set so that the differential yokes are in-line with the driveshaft under normal operating load. **Non-C.V.** driveshaft combinations must be set so that the pinion yoke angles match the transfer case output yoke angles under normal operating load. Remember to allow for (spring wrap) if you have leaf springs. The front pinion will dive downward under load and the rear pinion will rise upward. There are many different spring rates on the market, so this may take some tweaking to eliminate a poor driveshaft condition. (For examples, see photos below). The Atlas transfer case is a close tolerance design. If you feel any vibration at all in the shift handles, suspect improper driveshaft angles!

Rear (too low).
Will not raise enough for C.V.!

Rear (correct).
Perfect for C.V.

OPERATING YOUR NEW ATLAS

The Atlas has internal shifter interlocks that prevent the unit from being mis-shifted. The knobs on the Atlas Twin Stick are to assist you with identifying the rear output and the front output.

For **2WD High** in which the vehicle should first be tested, the knob labeled "Rear" will be in the high position and the "Front" knob should be in the neutral position. After a few miles in 2WD High, we recommend that you shift the "Front" shifter knob into High, putting you in 4WD High. (On manual locking hubs, to achieve any type of 4WD your hubs must be locked). *The "Front" shifter handle should shift smoothly in and out of neutral and High.* IF THE SHIFTER DOES NOT ENGAGE EASILY, DO NOT FORCE IT. (Your linkage my need to be adjusted). When you are shifting out of 4WD high, the "Front" knob *must always* be disengaged first. If the shifter feels tight or sticky, press in the clutch or shift to neutral (automatic transmission), or simply straighten the front wheels. The vehicle should be moving forward when shifting the Atlas.

When shifting into **Low range,** REMEMBER the following: The vehicle should be at a slow roll forward, no faster than 5 miles an hour. Speeds faster than recommended could cause personal injury (like unloading the rear payload into the front seats!), or damage to the drivetrain (which is not only embarrassing but expensive!). The Atlas has the unique feature of 2WD low with the rear axle or the front axle. At any time while driving in low ratio, you can disengage either the front or rear by shifting the respective handle into neutral.

Shifting an Atlas with an Automatic transmission: While the vehicle is slowly moving forward, place the transmission into neutral and engage the front or rear control into Low. The Atlas is a synchronized shift design which means synchro sets have been added to SPEED MATCH the gear and shaft relationship. If you are stopped with no forward motion and the unit will not shift, place the *transmission* in Drive or Reverse then back to neutral, then attempt to shift the Atlas. DO NOT FORCE THE ATLAS INTO GEAR.

Shifting an Atlas with an Manual transmission: While the vehicle is slowly moving forward, depress the clutch and engage the front or rear control into Low. DO NOT FORCE THE ATLAS INTO GEAR or HOLD PRESSURE ON THE SHIFT LEVERS WHILE RELEASING THE CLUTCH.

As you become accustom to the operations of the Atlas and the unit accumulates miles, the shifting will become easier.

TWIN STICK SHIFT POSITIONS

Neutral:	Both the "rear" and "front" knobs in the "**N**" position.
2WD High:	The "rear" knob in "**H**" position and the "front" knob in "**N**" position.
4WD High:	The "rear" knob in "**H**" position and the "front" knob in "**H**" position.
4WD Low:	The "rear" knob in "**L**" position and the "front" knob in "**L**" position.

2WD Low:

(***Rear*** Drive ONLY)	The "rear" knob in "**L**" position and the "front" knob in "**N**" position.
*(***Front*** Drive ONLY)	The "rear" knob in "**N**" position and the "front" knob in "**L**" position.

***Special Note:** With the front in 2WD low, the torque is distributed 100% to the front axle. Combined with the low gearing in the transfer case, these factors can cause undue strain on your front axles. This should only be used for quick tight turns in loose soil conditions. The only shift position that is not available is Front 2WD high.

4 Speed Atlas Reduction Housing: This is a non-synchronized shifted unit. To shift the reduction housing portion of the Atlas, the vehicle should come to a complete stop and the transmission must be in a neutral position. Once the vehicle is stopped, you can then engage or disengage the planetary gearing. The shifting of this unit is designed for a cable shifter.

OPERATING CONSIDERATIONS

The low gear reduction of the transfer case will help to ease you through the toughest terrain you can find. The essentials of good 4-wheeling is the sheer ability to maneuver at a safe speed while retaining your line of attack on the course in front of you. The slower rate of approach will not only keep you in the seat, but also keep the tires on the ground for the best possible performance.

If you are considering the Atlas or have purchased one already, it is sure to change the way you 4-wheel.

KNOW YOUR LIMITS!

Please begin with mild terrain and experiment safely to your new level of potential.

The low reduction will not only slow you to a tactical approach, but will also increase the expected output of your current equipment. Your response from the accelerator may surprise you. The crawl ratio is a torque multiplication. In some transfer case replacements, it can be an increase of more than twice that of the original potential.

KEY CONSIDERATIONS:

Brakes: On flat ground, with the brakes applied and the transfer case in low, you will notice deeper squat in the suspension as you shift your automatic transmission into gear. If you have large disk brakes (front and rear), you will be well equipped to control the increase in torque. If you have drum brakes or a set of stock vehicle brakes (front and rear), you might find it hard to stop the vehicle when the transfer case is in its low range gear. There are many aftermarket brake upgrade kits out on the market. For serious off-roading, this upgrade should be considered.

Differentials: You are sure to find your weakest link! If you are not sure about the capacity of your current equipment, you may want to consult with an expert in this field! Research any 4WD magazine for the various sources of manufacturers and distributors.

TOWING

The ***ATLAS 2*** speed has been flat-towed for a distance of 300 miles and no problems were encountered. At this time, we can only recommend flat-towing at this maximum distance. After 300 miles of travel, the vehicle should be started. With the transmission in gear and the Atlas in neutral, let the vehicle idle for 5-10 minutes. This will circulate the oil in the Atlas and allow for proper lubrication. We recommend that the Atlas should have at least 500 driving miles on it before you flat-tow, allowing the bearings to break in.

When a vehicle is being towed with the Atlas 2 speed, both shift levers should be in the Neutral position. Our experience regarding the transmission towing position are as follows (please also verify in your owners manual what the vehicle manufacturer recommends):

Automatic transmissions should be left in park / Manual transmissions should be left in any gear

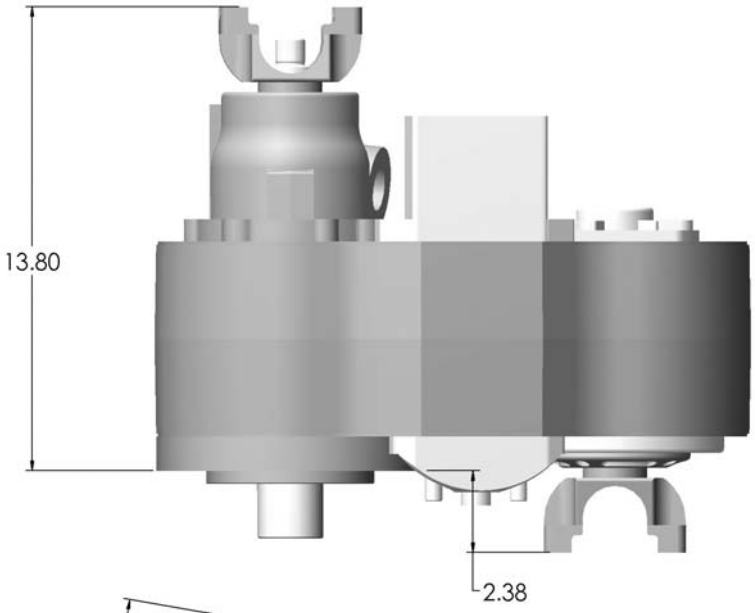
If you plan on flat-towing an Atlas 2 speed equipped vehicle and do not wish to stop to circulate the oil, we actually prefer that you remove the driveshafts from the vehicle. This will prevent any damage that may occur to the internal components due to lack of normal oil circulation.

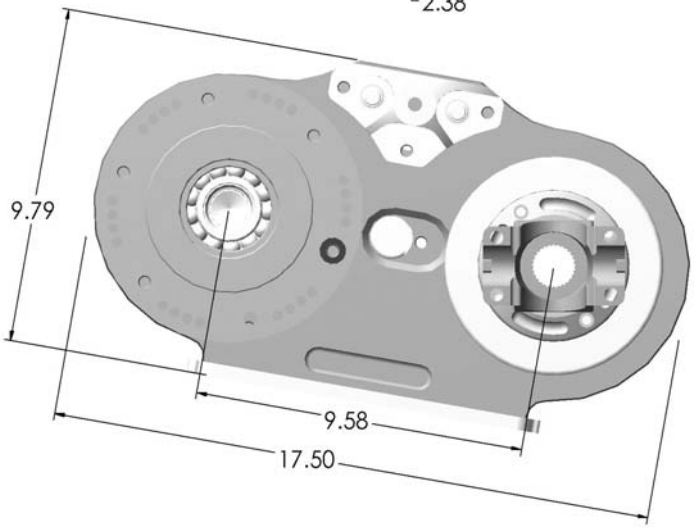
The ***ATLAS 4*** speed ***should never be flat-towed without removing the driveshafts***. The planetary unit and additional bearings do not receive the normal oil flow as they would under normal driving conditions and, therefore, damage will occur.

MAINTENANCE

Atlas oil levels should be monitored frequently. The oil site tube should be marked with a zip tie to indicate proper oil level for the Atlas at the rotation installed in your vehicle. The oil should be drained and replaced after the first 500 miles and then at intervals of 10,000 to 15,000 miles. ***Note:*** If your primary use is extreme offroading, you may consider intervals as frequent as every engine service.

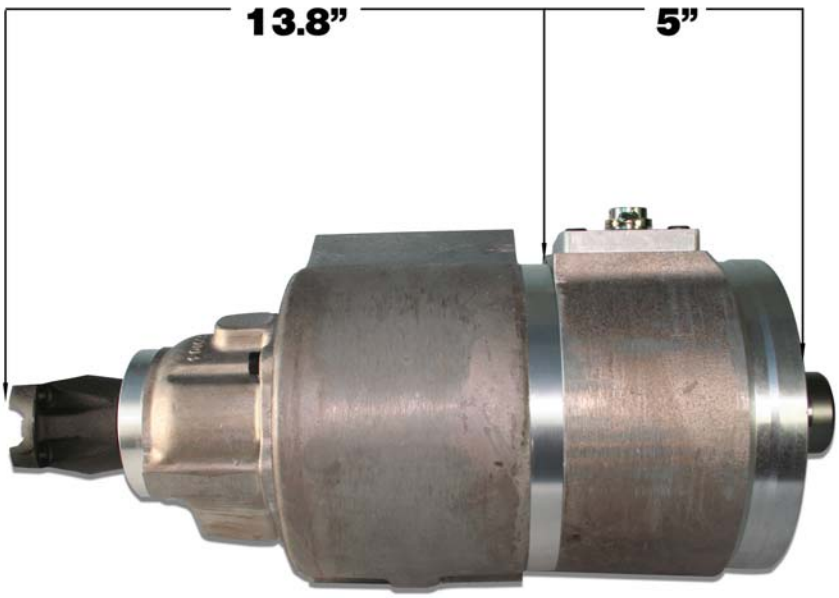
ATLAS 2 AND 4 SPEED DIMENSIONS





The Atlas measures approximately 14” from the center of the input to the outside edge of the main case.

The Atlas 4 speed has the same case dimensions as the 2 speed with the exception of the over all length and the linear distance of the front yoke to the transfer case input face.



ATLAS 4 SPEED 18.8” OAL

ATLAS UPDATES

The Atlas was first released in 1995. Over the years we have made improvements, design changes, and expanded the vehicle applications. The Atlas holds a strong reputation as the ultimate upgrade for an offroad vehicle. We have continually strived to improve on the Atlas where we perceived any short coming or potential weaknesses, and have always tried to evolve on the overall performance the case provides the end user. The dates or serial numbers listed below are significant changes in the Atlas and could effect the replacement parts needed if you are rebuilding or ordering parts for an Atlas transfer case.

1/1/2006: Cast iron forks.

5/4/2006: Site tube change, was ½"pipe fitting and is now a ¼" fitting.

11/30/2007: Change over to 32 spline input gear on all ratios. All number from here on started with a "G". (The Atlas 6.0: gear set was also discontinued at this time).

9/3/2009: Heavy duty 32 & 29 input shafts introduced, 300M material.

1/1/2010: Serialization of cases on the mill (6 digit serial numbers) - 9600.

5/27/2010: "SF" Gear sets introduced for the off road racers.

7/22/2010: Changed breather location and venting design on the main case - 10143.

8/19/2010: Increased tap depth of pan mounting threads from .45 to .75 min depth on case and went to longer Atlas pan bolts - 10289.

9/10/2010: Changed from 5/16-.75" B.H.C.S. to 5/16"-1" B.H.C.S. on the pan bolts - 10500.

11/23/2010: Changed from 5/16-1" B.H.C.S. to 5/16"-1" F.H.C.S. (flange head cap screw Grade 5) to aid in assembly - 10550.

2/2011-3/2011: The second generation Atlas 4 speed was released.

12/16/2011: The Atlas front retainer for the 32 spline front output is now a one piece housing.

2/25/2011: Added spot face feature to rear bearing cap and changed bolts to 5/16"-1" F.H.C.S. - 10875.

3/15/2011: Added "Advance Adapters" to the engraving on the main case 10910.

1/24/2012: Removed pockets from cluster pin bore so that cluster pin could be lengthened - 12314 (old pin P/N 300122, new P/N 300122A).

3/9/2012: Changed 300384 casting to allow for all 1.25 mounting bolts - 12299.

3/2012-4/2012: All Atlas' shipped with solid synchro dogs vs. the sheet metal ones.

4/24/2012: Cable shifter connections at the transfer case are easier to install and allows removal without disassembly of the shifter box. *(Less chance to break a cable due to installation error)*.

5/10/2012: Atlas rearshift block is machined the same for all Atlas cases and the shift rails are now bio-directional.

10/2/2012: Atlas 4 speed planetary has been revised to allow all inputs to fit into one housing.

10/18/12: Atlas 3.0 Gears are now all full fillet design. These gears should not be mixed with gears that were not full fillet *(This design adds up to a 20% strength upgrade)*.

1/1/2013: Atlas 3.8 Gears are now all full fillet design. These gears should not be mixed with gears that were not full fillet *(This design adds up to a 20% strength upgrade)*.

ADVANCE ADAPTERS INC.

RUBICRAWLER

This unit fits Jeeps 2003 to 2011 with the 42RLE automatic overdrive transmission. This new reduction unit replaces the stock 42RLE tailhousing with a 6 gear planetary reduction box featuring a 2.72 low range. This is a true bolt-in doubler that couples to the stock Jeep transfer case or an existing Atlas transfer case.

Features: The RubiCrawler increases your available gear ratios allowing you to gear your Jeep to the terrain in which you're wheeling on. The various ratios will allow you more control of the vehicle which results in extreme off road performance while maintaining a fun and safe offroading experience.

Ratios with a Stock New Process 231/241 are a 2.72:1 and a 7.40:1
Ratios with a Stock NP Rocktrac are a 2.72:1, 4.0:1 and a 10.88:1

Shifting the RubiCrawler: The RubiCrawler shifting mechanism utilizes push/pull cable technology for a smooth and easy shift. The universal cable shifter is included with the purchase of your RubiCrawler. *The universal shifter should be used if your vehicle is equipped with an Atlas transfer case.*

We also offer a twin stick cable shifter. These kits are designed to fit the stock Jeep TJ and JK consoles. These shifters are an additional charge but are best suited for most installations. The Jeep TJ twin stick shifter replaces the standard mechanical linkage. We have designed a twin stick shifter that comes through the stock console for a clean installation that operates both the RubiCrawler and the stock NP231 or NP241 transfer case. The twin stick JK shifter also provides a twin stick shifter through the stock console. This kit retains the stock transfer case cable with the addition of the new RubiCrawler cable. The RubiCrawler and shifter kits are ordered as a combination. The kit numbers below include the RubiCrawler unit as well as the shifter kit:

P/N RUBI-JKA	JEEP ***JK*** (STOCK TRANSFER CASE) Twin Stick Shifter
P/N RUBI-JK-UNIV	JEEP ***JK*** (ATLAS TRANSFER CASE) Universal Shifter RubiCrawler
P/N RUBI-TJ231A	JEEP ***TJ*** (STOCK 231 TRANSFER CASE) Twin Stick Shifter
P/N RUBI-TJ241A	JEEP ***TJ*** (STOCK 241 TRANSFER CASE) Twin Stick Shifter
P/N RUBI-TJ-UNIV	JEEP ***TJ*** (ATLAS TRANSFER CASE) Universal Shifter RubiCrawler

Additional Accessories:

P/N 42R360 - 1 quart A.T.F. *(4 quarts recommended)*
P/N 42R370 - New transmission filter
P/N 42R650 - JK Black anodized aluminum knobs twin stick shifter kit.

We have also designed an electronic interface assembly that integrates the RubiCrawler into the Jeep Wranglers electronics. The primary function of the RubiCrawler Control Module is to allow the Rubicon locking differentials and disconnecting sway bar (JK only) to operate when the RubiCrawler Low is engaged. **P/N 42R800**

ADVANCE ADAPTERS, INC. LIMITED WARRANTY

The RubiCrawler is guaranteed against defects in workmanship and materials for one year. This warranty begins from the date the unit is shipped from Advance Adapters. We log all units with a serial number at time of shipping. The warranty is void (as determined by Advance Adapters, Inc.) by misuse, abuse, improper maintenance, installation and/or alterations to the product. Warranty will be voided if the proper transmission fluid levels are not maintained, if any transmission fluid other than ATF+4 is used or the product has not been properly installed and instructions have not been followed. Do not disassemble or attempt to repair the RubiCrawler as doing so will void the warranty. Please return the product as further described below.

These guarantees do not cover any outside labor, shipping, towing, normal wear or any other unforeseen events that may occur due to failure of a unit. Advance Adapters reserves the right to repair or replace any product.

All returns must have a returned goods authorization (RGA#) prior to shipping the product, and returns are to be sent prepaid freight. Please call 1-800-350-2223 and the sales department can assist you.

The installation of a RubiCrawler into a Jeep is very simple and can be accomplished is a days time (8 hours on average). The transfer case remains in the stock location, so no driveline modifications are required. The installation does require the removal of the transfer case and disassembly of the console. We also manufacture a drivetrain support tool that is a great accessory in aiding with the installation process of the RubiCrawler as well as any other drivetrain work. Check out the Uni-Raise at www.advanceadapters.com.

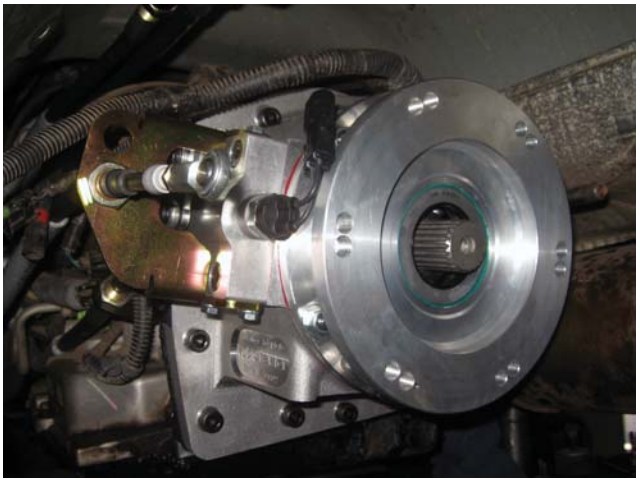
An unpacked TJ RubiCrawler kit. Also shown with ATF+4 fluid & filter (optional purchase items).

The 42RLE transmision rear housing after the stock transfer case has been removed.

These photos show the rear housing of the 42RLE transmission and the removal of the stock spud shaft. A slid hammer works the best; however, you could also pry the shaft out or make your own pulling tool (shown far left). Once the spud shaft is removed, the stock tailhousing can also be removed.

Photos (above) show the rear housing of the 42RLE transmission with the stock tailhousing removed. Note: Removing the tailhousing will cause the lose of some transmission fluid. The rear of the transmission needs to be cleaned and the mating surface of the RubiCrawler needs to have the Chrysler silicone (included with RubiCrawler) applied to the housing and then installed to the transmission. The oil supply for the RubiCrawler comes from a high pressure source in the transmission and the o-ring must also be installed to insure proper lubrication. On average, 4 quarts of ATF are required when installing a RubiCrawler.

Photos (above) show the RubiCrawler bolted in place. The unit is the exact same length as the stock tailhousing and has the same crossmember mounting location. This allows the stock transfer case to be reinstalled into its original location without any driveshaft or crossmember modifications. The RubiCrawler offers two bolt pattern rotation options; both were used in the Jeep vehicles. We recommend that the stock rotation be retained. Clocking the transfer case changes the driveline angles and we have found on some new installations that if the transfer case is re-clocked up closer to the floor board, vibrations in the drivetrain can appear. Logically most conclude it is because of the new RubiCrawler; however, the transfer case rotated different from stock will cause drivetrain vibrations and require axle pinion angle adjustments.



This section of 4 photos show some of the shifter brackets and cables connected to the RubiCrawler and the transfer case. The cables come with heat shields to protect them from the drivetrain.

Before and after look at the stock Jeep TJ & JK consoles. The photos below them are the new shifter kits installed. Shifter handles fit cleanly through the stock console for an OEM look. One handle controls the factory transfer case and the second is for the RubiCrawler.

Jeep TJ

Jeep JK with billet aluminum knobs (P/N 42R650)

Transfer Case Shifting: The transfer case can be shifted from 2 wheel drive to 4 wheel drive HIGH while the vehicle is moving. To shift the transfer case into 4 wheel drive LOW, you must shift the transmission to neutral and the vehicle speed must be below 2 mph. The transfer case can be shifted at a complete stop, but it is easier to shift the unit when at a very slow roll.

RubiCrawler Shifting: The RubiCrawler must be shifted when the transmission is in neutral and the vehicle speed is less than 2 mph. The RubiCrawler can be shifted at a complete stop, but it is easier to shift the unit when at a very slow roll. DO NOT try to FORCE the shift levers as serious damage to the shifters or unit can occur.

Maximum Speed: The RubiCrawler should not be operated at engine speeds above 5000 rpm when the transmission is in overdrive. This over speed condition will cause damage to the bearings and geartrain in the RubiCrawler in addition to possible damage to other components in the vehicle.

ATLAS REBUILDS AND REPLACEMENT ITEMS

Seal and bearing kits: **AB1000** and **AB1001** are complete rebuild kits that include new seals, bearings, gaskets, synchro dogs, springs and brass rings. The AB1000 is for Atlas transfer cases that have the 32 spline front output and the AB1001 is for the 26 spline front output units. The 4 speed Atlas could use the AB1000 with the addition of a few additional bearings that we use in the reduction housing.

Shift fork replacement: We have used several different designs on the Atlas shift forks over the years. Units produced in the early years had a gusseted steel shift fork, and under hard use these could be bent and then could cause the Atlas to pop out of gear in certain circumstances. Today we use a gusseted cast fork that is able to withstand the wear and tear of the various shifting woes. To upgrade to the new cast forks, order **P/N 301550**.

Site tube replacements: The site tube was a feature added to the Atlas early on to provide a quick glance at the oil level. The level was always an issue due to the various rotation options of the Atlas. The site tube has only had one change on the Atlas which is the fitting size on the case. We have changed the fitting material and the tubing material several times which does not effect anything on the case.

P/N 301600 - 1/4" fittings
P/N 301601- 1/2" fittings

Atlas oil: Amsoil MTF 75-90 GL4 **- P/N 303200**
(Torque MTF is also a oil that we have used in the past but no longer stock)

APPAREL:

We are constantly updating and adding new apparel. Most items have an Advance Adapters logo or Atlas transfer case logo. We buy quality apparel products since they represent our name. Check out our new apparel online at www.advanceadapters.com under the Apparel Category.

Most apparel is stocked in sizes ranging from Medium to XXXL. The apparel size is included in the part numbers (XLG is used for Extra large).

P/N 716051B - AA logo beanie (black)
P/N 716051B-TBLOGO - Throwback logo beanie (black)

P/N 716051HL-LOGO - Flexfit® Large AA logo hat
P/N 716051HL-LOGO-FLAT - Flexfit® Large AA logo hat (Flat Brim)

P/N 716051___ - AA and Atlas logo T-shirts *(indicate size)*

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